



**STATE OF MONTANA
REQUEST FOR PROPOSAL
(THIS IS NOT AN ORDER)**

RFP Number: RFP No. 106005	RFP Title: Services of Environmental Specialists to Assist in Preparing an Environmental Impact Statement for Genesis Inc.'s Proposed Troy Mine Revised Reclamation Plan
RFP Due Date and Time: September 5, 2006, 2:00 p.m., Local Time	Number of Pages: 1 page of cover material, 28-page RFP, plus Appendices A, B, C, D

ISSUING AGENCY INFORMATION

Designated representative: Kathleen Johnson, Designated RFP Representative	Issue Date: July 21, 2006
Department of Environmental Quality Director's Office P.O. Box 200901 1520 E. Sixth Avenue Helena, MT 59620-0901	Phone: 406-444-1760 Fax: 406-444-4386 E-mail: katjohnson@mt.gov

INSTRUCTIONS TO OFFERORS

Return Proposal to: Department of Environmental Quality Director's Office Metcalf Building, 1 st Floor 1520 E. Sixth Avenue P.O. Box 200901 Helena, MT 59620-0901	Mark Face of Envelope/Package: RFP Number: 106005 RFP Due Date: September 5, 2006
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Special Instructions: Any questions requiring clarification, interpretation, or correction concerning this RFP must be received by the designated RFP representative no later than 2:00 p.m. on **August 18, 2006**, to require a response by DEQ. All questions must be in writing submitted and received by delivery service, by hand, by fax, or by e-mail at the address designated in Section 1.1. Please refer to Sections 1.2.1 through 1.2.4 of the RFP.

IMPORTANT: SEE STANDARD TERMS AND CONDITIONS

OFFERORS MUST COMPLETE THE FOLLOWING

Offeror Name/Address:	Authorized Offeror Signatory: (Please print name and sign in ink)
Offeror Phone Number:	Offeror FAX Number:
Offeror E-mail Address:	

OFFERORS MUST RETURN THIS COVER SHEET WITH RFP RESPONSE

REQUEST FOR PROPOSALS

FOR

SERVICES OF ENVIRONMENTAL SPECIALISTS

TO ASSIST IN PREPARING AN
ENVIRONMENTAL IMPACT STATEMENT
FOR
GENESIS INC.'S
PROPOSED TROY MINE REVISED RECLAMATION PLAN

FOR THE STATE OF MONTANA
DEPARTMENT OF ENVIRONMENTAL QUALITY

AND

U.S. FOREST SERVICE
KOOTENAI NATIONAL FOREST

RFP 106005

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OFFEROR'S RFP CHECKLIST

The 10 Most Critical Things to Keep in Mind When Responding to an RFP for the State of Montana

1. _____ **Read the entire document.** Note critical items such as: mandatory requirements; supplies/services required; submittal dates; number of copies required for submittal; funding amount and source; contract requirements (i.e., contract performance security, insurance requirements, performance and/or reporting requirements, etc.).
2. _____ **Note the designated representative's name, address, phone numbers and e-mail address.** This is the only person you are allowed to communicate with regarding the RFP and is an excellent source of information for any questions you may have.
3. _____ **Attend the pre-proposal conference** if one is offered. These conferences provide an opportunity to ask clarifying questions, obtain a better understanding of the project, or to notify the State of any ambiguities, inconsistencies, or errors in the RFP.
4. _____ **Take advantage of the “question and answer” period.** Submit your questions to the designated representative by the due date listed in the Schedule of Events and view the answers given in the formal “addenda” issued for the RFP. All addenda issued for an RFP are posted on the General Services Division (GSD) website and will include all questions asked and answered concerning the RFP.
5. _____ **Follow the format required in the RFP** when preparing your response. Provide point-by-point responses to all sections in a clear and concise manner.
6. _____ **Provide complete answers/descriptions.** Read and answer **all** questions and requirements. Don't assume DEQ or evaluation committee will know what your company capabilities are or what items/services you can provide, even if you have previously contracted with the State. The proposals are evaluated based solely on the information and materials provided in your response.
7. _____ **Use the forms provided**, i.e., cover page, sample budget form, certification forms, etc.
8. _____ **Check the State's website for RFP addenda.** Before submitting your response, check the State's website at <http://gsd.mt.gov/osbs/default.asp> to see whether any addenda were issued for the RFP. If so, you must submit a signed cover sheet for each addendum issued along with your RFP response.
9. _____ **Review and read the RFP document again** to make sure that you have addressed all requirements. Your original response and the requested copies must be identical and be complete. The copies are provided to the evaluation committee members and will be used to score your response.
10. _____ **Submit your response on time.** Note all the dates and times listed in the Schedule of Events and within the document, and be sure to submit all required items on time. Late proposal responses are **never** accepted.

This checklist is provided for assistance only and should not be submitted with Offeror's Response.

SCHEDULE OF EVENTS

<u>EVENT</u>	<u>DATE</u>
RFP Issue Date	7/21/06
Mine Site Visit	8/15/06
Deadline for Receipt of Written Questions	8/18/06
Deadline for Posting of Written Answers to the GSD Website	8/24/06
RFP Response Due Date	9/5/06
Notification of Offer or Offeror Interviews (if needed)	9/12/06
Offeror Interviews (if needed)	9-14-15/06
Notification of Offer (if interviews were needed).....	9/18/06
Intended Date for Contract Award (without interviews)	9/18/06
Intended Date for Contract Award (with interviews)	9/22/06

SECTION 1: PROJECT OVERVIEW AND INSTRUCTIONS

1.0 PROJECT OVERVIEW

The STATE OF MONTANA, Department of Environmental Quality, (hereinafter referred to as "DEQ" or "the State") invites you to submit a proposal for services of environmental specialists to assist DEQ and its co-lead agency, the U.S. Forest Service (USFS), in reviewing the permit application and preparing an environmental impact statement (EIS) for Genesis Inc.'s (Genesis) proposed Troy Mine Revised Reclamation Plan. A more complete description of the services sought for this project is provided in Section 3, Scope of Project. Proposals submitted in response to this solicitation must comply with the instructions and procedures contained herein.

1.1 CONTRACT TERM

The contract term is for a period of two (2) years beginning approximately **September 22, 2006**, and ending two (2) years thereafter. Renewals of the contract, by mutual agreement of both parties, may be made at two-year intervals, or any interval that is advantageous to the State, not to exceed a total of seven (7) years, at the option of the State.

1.2 SINGLE POINT OF CONTACT

From the date this Request for Proposal (RFP) is issued until an offeror is selected and the selection is announced by the designated representative, **offerors are not allowed to communicate with any state or USFS staff or officials regarding this procurement, except at the direction of Kathleen Johnson**, the designated representative in charge of the solicitation. Any unauthorized contact may disqualify the offeror from further consideration. Contact information for the single point of contact is as follows:

Kathleen Johnson
P.O. Box 200901
1520 E. Sixth Avenue
Helena, MT 59620-0901
Telephone: 406-444-1760
Fax: 406-444-4386
E-mail: katjohnson@mt.state

1.3 REQUIRED REVIEW

1.3.1 Review RFP. Offerors should carefully review the instructions, mandatory requirements, specifications, standard terms and conditions, and standard contract set out in this RFP and promptly notify the designated representative identified above in writing or via e-mail of any ambiguity, inconsistency, unduly restrictive specifications, or error which they discover upon examination of this RFP. This should include any terms or requirements within the RFP that either preclude the offeror from responding to the RFP or add unnecessary cost. This notification must be accompanied by an explanation and suggested modification and be received by the deadline for receipt of written or e-mailed inquiries set forth below. The State will make any final determination of changes to the RFP.

1.3.2 Form of Questions. Offerors with questions or requiring clarification or interpretation of any section within this RFP must address these questions in writing or via e-mail to the designated representative referenced above on or before **August 18, 2006**. Each question must provide clear reference to the section, page, and item in question. Questions received after the deadline may not be considered.

1.3.3 State's Answers. The State will provide an official written answer by **August 24, 2006** to all questions received by **August 18, 2006**. The State's response will be by formal written addendum. Any other form of interpretation, correction, or change to this RFP will not be binding upon the State. Any formal written addendum will be posted on the General Services Division's website alongside the posting of the RFP at <http://discoveringmontana.com/doa/gsd/osbs/default.asp> by the close of business on the date listed. Offerors must sign and return any addendum with their RFP response.

1.4 PRE-PROPOSAL MINE SITE VISIT

An optional Pre-Proposal Mine Site Visit will commence from Kootenai National Forest Supervisor's Office, 1101 Hwy 2 West, Libby, MT on **August 15, 2006 at 10:00 a.m.** with an orientation in a conference room at the Supervisor's Office between **8:30 and 10:00 a.m.** Access to the mine site will depend upon the weather and road conditions; four-wheel drive vehicles may be required. Cancellation or postponement of the Mine Site Visit will be posted on the GSD web site. Offerors may use this opportunity to ask clarifying questions or obtain a better understanding of the project from DEQ, the USFS, or Genesis. All responses to questions at the Mine Site Visit will be oral and in no way binding on the State.

1.5 GENERAL REQUIREMENTS

1.5.1 Acceptance of Standard Terms and Conditions/Standard Contract. By submitting a response to this RFP, offeror agrees to acceptance of the standard terms and conditions and standard contract as set out in Appendices A and B of this RFP. Much of the language included in the standard terms and conditions and standard contract reflects requirements of Montana law. Requests for additions or exceptions to the standard terms and conditions, standard contract terms, or any added provisions must be submitted to the designated representative referenced above by the date for receipt of written/e-mailed questions and must be accompanied by an explanation of why the exception is being sought and what specific effect it will have on the offeror's ability to respond to the RFP or perform the contract. The State reserves the right to address non-material, minor, or insubstantial requests for exceptions with the selected offeror during contract negotiation. Any material, substantive, or important exceptions requested and granted to the standard terms and conditions and standard contract language will be addressed in any formal written addendum issued for this RFP and will apply to all offerors submitting a response to this RFP. The State will make any final determination of changes to the standard terms and conditions and/or standard contract.

1.5.2 Resulting Contract. This RFP and any addenda, the offeror's RFP response, including any amendments, a best and final offer, and any clarification question responses shall be included in any resulting contract. The State's contract, attached as Appendix A, contains the contract terms and conditions which will form the basis of any contract between the State and the selected offeror. In the event of a dispute as to the duties and responsibilities of the parties under this contract, the contract, along with any attachments prepared by the State, will govern in the same order of precedence as listed in the contract.

1.5.3 Mandatory Requirements. To be eligible for consideration, an offeror **must** meet the intent of all mandatory requirements. The State will determine whether an offeror's RFP response complies with the intent of the requirements. RFP responses that do not meet the full intent of all requirements listed in this RFP may be subject to point reductions during the evaluation process or may be deemed non-responsive.

1.6 SUBMITTING A PROPOSAL

1.6.1 Organization of Proposal. Offerors must organize their proposal into sections that follow the format of this RFP, with tabs separating each section. A point-by-point response to all numbered sections, subsections, and appendices is required. If no explanation or clarification is required in the offeror's response to a specific subsection, the offeror shall indicate so in the point-by-point response or utilize a blanket response for the entire section with the following statement:

“(Offeror’s Name)” understands and will comply.

1.6.2 Failure to Comply with Instructions. Offerors failing to comply with these instructions may be subject to point deductions. The State may also choose to not evaluate, may deem non-responsive, and/or may disqualify from further consideration any proposals that do not follow this RFP format, are difficult to understand, are difficult to read, or are missing any requested information.

1.6.3 Multiple Proposals. Offerors may, at their option, submit multiple proposals, in which case each proposal shall be evaluated as a separate document.

1.6.5 Copies Required and Deadline for Receipt of Proposals. Offerors must submit one original unbound proposal and seven (7) bound copies to DEQ. Three (3) bound copies must be sent separately to the USFS, Kootenai National Forest, 1101 Hwy 2 West, Libby, MT 59923, Attention John McKay. Proposals must be sealed and labeled on the outside of the package to clearly indicate that they are in response to DEQ RFP No. 106005. ***Proposals sent to DEQ must be received at the Director’s Office receptionist’s desk of DEQ prior to 2:00 pm, local time, September 5, 2006. Facsimile responses to requests for proposals are ONLY accepted on an exception basis with prior approval of the designated representative.***

1.6.6 Late Proposals. ***Regardless of cause, late proposals will not be accepted and will automatically be disqualified from further consideration.*** It shall be the offeror’s sole risk to assure delivery at the receptionist’s desk at the designated office by the designated time. Late proposals will not be opened and may be returned to the offeror at the expense of the offeror or destroyed if requested.

1.6.7 Contents of Proposals. A proposal must contain the following:

1.6.7.1 An explanation of the offeror’s role in working with DEQ and USFS in terms of reviewing permit applications and preparing the EIS. Specific emphasis should be placed on team organization, communication, and coordination.

1.6.7.2 Conflict of Interest Statements (noted in Final 4.1.5).

1.6.7.3 An annotated outline of the EIS.

1.6.7.4 A preparation plan, including format and schedule, for developing the EIS, using the information provided in Section 3 for general guidance. Specifically address those special concerns identified or anticipated.

1.6.7.5 An explanation of how to identify which alternatives are appropriate for inclusion in the EIS and the scope of analysis needed for evaluation of the direct, indirect, and cumulative impacts.

1.6.7.6 A list of other planned and existing documents and how they would be used in the EIS.

1.6.7.7 Specific management and staff, percentage of time each will spend on the project, and resumes. **Clear, concise commitments of personnel must be provided in the work proposal.** The work proposal shall describe how present and projected workloads for other projects the offeror is or may be involved in could limit expeditious completion of the EIS. Identify how many active contracts the offeror and its contractor(s) have with DEQ and/or the USFS in Region 1. Include resumes and qualifications as well as project-related experience of each individual on the offeror’s project team (see 4.1.2 and 4.1.5).

1.6.7.8 Estimated cost to prepare a camera-ready copy of texts described in Section 3 as well as a pdf version on a CD. The proposal should estimate staff hours, labor rates, individual and total labor costs, and other direct costs such as word processing, graphics, photocopying, travel, and per diem.

Travel budgets are limited to state rates for travel and per diem. The current rates are as follows:

	<u>In-State</u>	<u>Out-of-State</u>
Meals:		
Breakfast	\$5.00	\$7.00
Midday	\$6.00	\$11.00
Evening	\$12.00	\$18.00
Lodging:	federal rates (Plus 6.5% bed tax)	federal rates
Mileage for personal vehicles:	\$0.365/mile (or current IRS rate)	\$0.365/mile (or current IRS rate)

NOTE: Federal lodging rates are being used by the state of Montana. In state rates are currently \$60 unless it is a high cost city. Rates for high cost cities in the USA and Montana can be found at the GSA web site¹. Out-of-state rates apply to contract employees residing outside of Montana. Receipts are required for lodging and automobile rentals.

An itemized budget should be constructed for review of permit applications, preparation of scoping reports, and for preparation of the draft EIS and any technical reports. The budget should include estimated costs for printing and distributing both printed and CD versions of the draft EIS. A total budget must be estimated through completion of the draft EIS based on actual costs not to exceed a proposed amount.

Since the numbers and content of public comments received on the draft EIS are uncertain, the offeror is required to identify only chargeable rates for personnel and other direct costs that may be incurred in preparing the final EIS.

1.6.7.9 EIS-related documents they have prepared showing knowledge and familiarity with the following state statutes and regulations and the EIS process:

- Montana Metal Mine Reclamation Act (MMRA), 82-4-301 *et seq.*, MCA, and ARM 17.24.101 *et seq.* and 24.30.1301;
- Montana Water Quality Act (MWQA), 75-5-101 *et seq.*, MCA, and ARM 17.30.1301 *et seq.* and 17.30.1001 *et seq.*;
- Montana Clean Air Act (MCAA), 75-2-101 *et seq.*, 75-2-211 and 217, MCA and ARM 17.8.740 *et seq.* and 17.8.1201 *et seq.*, Prevention of Significant Deterioration (PSD), ARM 17.8.801, and New Source Review in Nonattainment Areas, ARM 17.8.901-906; and
- Montana Environmental Policy Act (MEPA), 75-1-101 *et seq.*, MCA, ARM 17.4.601 *et seq.*.

¹ GSA per diem website:

http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentId=17943&contentType=GSA_BASIC.

Other applicable state laws the offeror should be familiar with include:

- Montana Hazardous Waste Act, 75-10-401 *et seq.* and 75-40-432 and 433, MCA, and ARM 17.54.101 *et seq.*, 17.53.601, 17.53.701, and 17.1201 and 1202;
- Solid Waste Management Act, 75-10-901 *et seq.*, MCA, and ARM 17.50.501 *et seq.*;
- Federal Clean Water Act—Section 401 Certification and 318 authorizations, 33 U.S.C.A. § 1251 *et seq.*, 33 CFR 209 and 40 Federal Register 31319, and ARM 17.30.101 *et seq.*;
- Hard-Rock Mining Impact Act (HRMIA), 82-4-335 and 339, 15-37-111, and 90-6-301 *et seq.*, MCA and ARM 8.104.201 *et seq.*;
- Property Tax Base Sharing Act, 90-6-401 *et seq.*;
- Metal Mines License Tax Allocation statutes;
- Natural Streambed and Land Preservation Act, 75-7-101 *et seq.*, MCA and ARM 36.2.401 *et seq.*;
- Floodplain and Floodway Management Act, 76-5-401 through 406, MCA and ARM 36.15.601-801;
- Montana Dam Safety Act, 85-15-105 *et seq.*, 77-4-201 through 210, MCA and ARM 36.201-208, 36.14.301 *et seq.*, and 36.14.401 *et seq.*;
- Montana Noxious Weed Act, 7-1-201 *et seq.*, MCA; and
- The County Weed Control Act, 7-22-2100 *et seq.*, MCA.

1.6.7.10 EIS-related documents they have prepared showing knowledge and familiarity with the following federal statutes, regulations, orders, and treaty:

- National Environmental Policy Act as amended (NEPA), 42 U.S.C. 4321 *et seq.* and 40 CFR 1500 *et seq.*;
- General Mining Law of 1872, 17 Stat. 91, as amended;
- Endangered Species Act of 1973, 16 U.S.C. 1531 *et seq.*;
- National Forest Management Act of 1976, Public Law 94-588, as amended,
- Federal Land Policy and Management Act of 1976, 43 U.S.C. 1701 *et seq.*;
- Historic Sites Act, 16 U.S.C. 461, *et seq.*;
- National Historic Preservation Act of 1966, 16 U.S.C. 470, and 36 CFR 800, 36 CFR Part 7, 36 CFR 79, 36 CFR 60, and 36 CFR 219.24;
- Mining and Minerals Policy Act of 1970, Public Law 91-631;
- Multiple-Use Sustained-Yield Act of 1960, Public Law 86-517; 36 CFR 228, Subpart A. Sections 228.1 through 228.15;
- Archaeological Resources Protection Act of 1979 (ARPA) P.L. 96-95) and 36 CFR Part 7;
- Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) (25 U.S.C. 3001-3013) and 43 CFR Part 10;
- American Indian Religious Freedom Act of 1978 (AIRFA) (P.L.95-341 as amended, P.L. 103-344);
- Regulatory Planning and Review; Religious Freedom Restoration Act of 1993 (P.L. 103-141);
- Rehabilitation Act, 29 U.S.C. 794d, Section 508.
- Executive Order 11593 of 1971, Protection and Enhancement of the Cultural Environment;
- Executive Order 12866 of 1993, Regulatory Planning and Review
- Executive Order 12898 of 1994, Environmental Justice in Minority Populations and Low-Income Populations;

- Executive Order 12906 of 1994, Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure.
- Executive Order 13007 of 1996, Indian Sacred Sites; Executive Order 13175 of 2000, Consultation and Coordination with Indian Tribal Governments;
- Executive 13084 of 1998, Consultation and Coordination with Indian Tribes Governments;
- Executive Order 13287 of 2000, Preserve America;
- Interior Secretarial Order 3175 of 1993, Consideration of Project Effect on Indian Trust Resources; and
- Hellgate Treaty of 1855;

1.6.7.11 Qualifications and references listed in Section 4.

1.6.7.12 A schedule for the expeditious completion of the permit amendment application review and the EIS. Offerors must submit a month-by-month schedule for project completion, which identifies all activities and interim deliverables. The schedule should identify where it can be tightened or slackened to meet specific project needs. Offerors should also demonstrate their ability to maintain quality under tight timeframes.

1.7 OFFEROR'S CERTIFICATION

1.7.1 Understanding of Specifications and Requirements. By submitting a response to this RFP, offeror agrees to an understanding of and compliance with the specifications and requirements described in this RFP.

1.7.2 Prime Contractor/Subcontractors. The selected offeror will be the prime contractor if a contract is awarded and shall be responsible, in total, for all work of any subcontractors. All subcontractors, if any, must be listed in the proposal. The State reserves the right to approve all subcontractors. The Contractor shall be responsible to the State for the acts and omissions of all subcontractors or agents and of persons directly or indirectly employed by such subcontractors, and for the acts and omissions of persons employed directly by the Contractor. Further, nothing contained within this document or any contract documents created as a result of any contract awards derived from this RFP shall create any contractual relationships between any subcontractor and the State.

1.7.3 Offeror's Signature. The proposals must be signed in ink by an individual authorized to legally bind the business submitting the proposal. The offeror's signature on a proposal in response to this RFP guarantees that the offer has been established without collusion and without effort to preclude the State of Montana from obtaining the best possible supply or service. Proof of authority of the person signing the RFP response must be furnished upon request.

1.7.4 Offer in Effect for 120 Days. A proposal may not be modified, withdrawn or canceled by the offeror for a 120-day period following the deadline for proposal submission as defined in the Schedule of Events, or receipt of best and final offer, if required, and offeror so agrees in submitting the proposal.

1.8 COST OF PREPARING A PROPOSAL

1.8.1 State Not Responsible for Preparation Costs. The costs for developing and delivering responses to this RFP and any subsequent presentations of the proposal as requested by the State are entirely the responsibility of the offeror. The State is not liable for any expense incurred by the offeror in the preparation and presentation of their proposal or any other costs incurred by the offeror prior to execution of a contract.

1.8.2 All Timely Submitted Materials Become State Property. All materials submitted in response to this RFP become the property of the State and are to be appended to any formal

documentation, which would further define or expand any contractual relationship between the State and offeror resulting from this RFP process.

SECTION 2: RFP STANDARD INFORMATION

2.0 AUTHORITY

This RFP is issued under the authority of § 18-4-304, MCA (Montana Code Annotated) and ARM 2.5.602 (Administrative Rules of Montana). The RFP process is a procurement option allowing the award to be based on stated evaluation criteria. The RFP states the relative importance of all evaluation criteria. No other evaluation criteria, other than as outlined in the RFP, will be used.

2.1 OFFEROR COMPETITION

The State encourages free and open competition among offerors. Whenever possible, the State will design specifications, proposal requests, and conditions to accomplish this objective, consistent with the necessity to satisfy the State's need to procure technically sound, cost-effective services and supplies.

2.2 RECEIPT OF PROPOSALS AND PUBLIC INSPECTION

2.2.1 Public Information. All information received in response to this RFP, including copyrighted material, is deemed public information and will be made available for public viewing and copying shortly after the time for receipt of proposals has passed with the following four exceptions: (1) bona fide trade secrets meeting the requirements of the Uniform Trade Secrets Act, Title 30, chapter 14, part 4, MCA, that have been properly marked, separated, and documented; (2) matters involving individual safety as determined by the Department of Administration; (3) any company financial information requested by the Department of Administration to determine vendor responsibility, unless prior written consent has been given by the offeror as set out in § 18-4-308, MCA; and (4) other constitutional protections. See § 18-4-304 MCA.

2.2.2 Designated Representative Review of Proposals. Upon opening the proposals received in response to this RFP, the designated representative in charge of the solicitation will review the proposals and separate out any information that meets the referenced exceptions in Section 2.2.1 above, providing the following conditions have been met:

- Confidential information is clearly marked and separated from the rest of the proposal.
- The proposal does not contain confidential material in the cost or price section.
- An affidavit from an offeror's legal counsel attesting to and explaining the validity of the trade secret claim as set out in Title 30, chapter 14, part 4, MCA, is attached to each proposal containing trade secrets. Counsel must use the State of Montana "Affidavit for Trade Secret Confidentiality" form in requesting the trade secret claim. This affidavit form is available from the GSD by calling (406) 444-2575; it is also on the GSD website at: <http://gsd.mt.gov/procurement/forms.asp>.

Information separated out under this process will be available for review only by the designated representative, the evaluation committee members, and limited other designees. Offerors must be prepared to pay all legal costs and fees associated with defending a claim for confidentiality in the event of a "right to know" (open records) request from another party.

2.3 CLASSIFICATION AND EVALUATION OF PROPOSALS

2.3.1 Initial Classification of Proposals as Responsive or Nonresponsive. All proposals will initially be classified as either "responsive" or "nonresponsive," in accordance with ARM 2.5.602. Proposals may be found nonresponsive any time during the evaluation process or contract negotiation if any of the required information is not provided; the submitted price is found to be excessive or inadequate as measured by criteria stated in the RFP; or the proposal is not within the plans and

specifications described and required in the RFP. If a proposal is found to be nonresponsive, it will not be considered further.

2.3.2 Determination of Responsibility. The designated representative will determine whether an offeror has met the standards of responsibility in accordance with ARM 2.5.407. Such a determination may be made at any time during the evaluation process and through contract negotiation if information surfaces that would result in a determination of nonresponsibility. If an offeror is found nonresponsive, the determination must be in writing, made a part of the procurement file and mailed to the affected offeror.

2.3.3 Completeness of Proposals. Selection and award will be based on the offeror's proposal and other items outlined in this RFP. Submitted responses may not include references to information located elsewhere, such as Internet websites or libraries, unless specifically requested. Information or materials presented by offerors outside the formal response or subsequent discussion/negotiation or "best and final offer," if requested, will not be considered, will have no bearing on any award, and may result in the offeror being disqualified from further consideration.

2.3.4 Evaluation of Proposals. The evaluation committee will evaluate the remaining responsive and responsible proposals based on stated evaluation criteria. In scoring against stated criteria, the State may consider such factors as accepted industry standards and a comparative evaluation of all other qualified RFP responses in terms of differing price, quality, and contractual factors.

When hiring a third-party contractor to prepare an environmental impact statement on a mine operating permit application, DEQ is required under Section 82-4-337(1)(d)(iv), MCA, to prepare a list of no fewer than four qualified contractors acceptable to DEQ and to provide the applicant, in this case Genesis, with a copy of the list. Genesis will then be required to provide DEQ with a list of at least 50 percent of the contractors from DEQ's list, hereinafter referred to as the shortened list. DEQ is required to select the contractor from the shortened list.

The scores determined by the evaluation committee will be used to determine the most advantageous offerings to the State and to prepare the list of acceptable and qualified contractors that will be provided to Genesis.

The evaluation committee will recommend whether to award the contract to the highest scoring offeror in the shortened list or, if necessary, to seek discussion/interviews (paragraph 2.3.5) or a best and final offer (paragraph 2.3.6) in order to determine the highest scoring offeror from the shortened list. The discussions/interviews and best and final offers will be scored against the stated criteria and those scores will either be used alone or used to modify appropriate sections of the original scores for the proposals to determine the highest scoring offeror from the shortened list.

2.3.5 Opportunity for Discussion/Negotiation, Interview, and/or Oral Presentation. After receipt of the shortened list from Genesis and prior to the determination of the award, the State may initiate discussions or interviews with one or more of the offerors on the shortened list should clarification or negotiation be necessary. These offerors may also be required to make an oral presentation to clarify their RFP response or to further define their offer. In either case, offerors should be prepared to send qualified personnel to Helena, Montana, to discuss technical and contractual aspects of the proposal. Oral presentations, if requested, shall be at the offeror's expense.

2.3.6 Best and Final Offer. The "Best and Final Offer" is an option available to the State under the RFP process, which permits the State to request a "best and final offer" from one or more offerors if additional information is required to make a final decision. Offerors on the shortened list may be contacted asking that they submit their "best and final offer," which must include any and all discussed and/or negotiated changes. The State reserves the right to request a "best and final offer" for this RFP, if any, based on price/cost alone.

2.3.7 Evaluation Committee Recommendation for Contract Award. The evaluation committee will provide a written recommendation for contract award to the contracts officer that contains the scores, justification and rationale for its decision. The contracts officer will review the recommendation to ensure its compliance with the RFP process and criteria before concurring in the evaluation committee's recommendation.

2.3.8 Request for Documents Notice. Upon concurrence with the evaluation committee's recommendation for contract award, the contracts officer will issue a "Request for Documents Notice" to the highest scoring offeror from the shortened list to obtain the required insurance documents, contract performance security, and any other necessary documents. Receipt of the "Request for Documents Notice" does not constitute a contract and no work may begin until a contract signed by all parties is in place. The designated representative or the contracts officer will notify all other offerors of the State's intent to begin contract negotiation with the highest scoring offeror from the shortened list.

2.3.10 Contract Negotiation. Upon issuance of the "Request for Documents Notice," the designated representative and/or state agency representatives may begin contract negotiation with the responsive and responsible offeror from the shortened list whose proposal achieves the highest score (after scores from interviews and requests for best and final offers are added to the proposal scores, if the State determines the need for these items) and is, therefore, the most advantageous to the State. If contract negotiation is unsuccessful or the highest scoring offeror fails to provide necessary documents or information in a timely manner, or fails to negotiate in good faith, the State may terminate negotiations and begin negotiations with the next highest scoring offeror from the shortened list described in paragraph 2.3.4.

2.3.11 Contract Award. Contract award, if any, will be made to the highest scoring offeror from the shortened list who provides all required documents and successfully completes contract negotiation. A formal contract utilizing the Standard Contract attached as Appendix A and incorporating the Standard Terms and Conditions attached as Appendix B will be executed by all parties.

2.4 STATE'S RIGHTS RESERVED

While the State has every intention to award a contract as a result of this RFP, issuance of the RFP in no way constitutes a commitment by the State of Montana to award and execute a contract. Upon a determination such actions would be in its best interest, the State, in its sole discretion, reserves the right to:

- cancel or terminate this RFP (§ 18-4-307, MCA);
- reject any or all proposals received in response to this RFP (ARM 2.5.602);
- waive any undesirable, inconsequential, or inconsistent provisions of this RFP which would not have significant impact on any proposal (ARM 2.5.505);
- not award if it is in the best interest of the State not to proceed with contract execution (ARM 2.5.602); or
- if awarded, terminate any contract if the State determines adequate state funds are not available (§ 18-4-313 MCA).

Furthermore, the State, in consultation with the USFS, reserves the right to prepare selected sections of the DEIS or FEIS. As appropriate, the State and the USFS will provide such prepared material to the Contractor in a timely manner sufficient to ensure its integration into the DEIS or FEIS.

SECTION 3: SCOPE OF PROJECT

3.1 BACKGROUND

DEQ and USFS are seeking the assistance of a third-party contractor. The Contractor will assist the agencies in reviewing the Genesis, Inc. Troy Mine Revised Reclamation Plan and all associated reports, permits, plans, data sources, and other file records associated with over 30 years of planning, permitting, and operating the Troy Mine. A more detailed description of the Project is provided in Appendix C. The proposed Troy Mine Revised Reclamation Plan is described in Appendix C. The Contractor will also assist the agencies in preparing an EIS analyzing the impacts of implementing the Revised Reclamation Plan and all developed alternatives. The EIS must meet the requirements of MEPA and NEPA and provide the basis for the agencies to make informed decisions relative to their legal authorities. MEPA is generally considered a procedural statute for most purposes in that while the EIS can identify mitigations to address impacts, agencies cannot impose mitigations for which they have no authority unless the applicant requests those mitigations be added to the permit.

DEQ and USFS are soliciting detailed work proposals for the EIS to address issues identified below in Section 3.2.3.4 and others identified in the scoping process. The successful contractor will begin work immediately upon approval of a contract agreement, which is anticipated in June 2006. The contractor will be responsible directly to, and is expected to work closely with, DEQ and USFS in reviewing the proposed Troy Mine Revised Reclamation Plan and analyzing, drafting and assembling the EIS, and ensuring that proper public participation is provided and all appropriate concerns are addressed in the EIS.

The Troy Mine Revised Reclamation Plan permit amendment contains basic information about the Troy Mine.

3.2 PROVISIONS

3.2.1 Project Schedule. DEQ anticipates that no more than 18 months will be necessary to complete the project through the final EIS once the contractor is selected. The following **tentative** schedule for preparation of the EIS is based on a timeframe beginning with the effective date of the contract.

Date	Duration	Description
7/21/06		RFP released
No later than 9/19/06		Contractor selected
No later than 9/22/06		Contract awarded
<i>Project Scoping</i>		
10/27/-11/27/06	31 days	Publish NOI; start scoping period
At least 2 weeks before end of scoping period		Public scoping meetings; federal, state, regional, local, and tribal government meetings.
2 weeks after USFS completes Content Analysis of Scoping Comments		Scoping Report
<i>Draft EIS</i>		
10/16/06		Start developing chapters 1 and 2
10/30-2/15/07	~75 days	Develop Alternatives
10/30 – 3/30/07	5 months	Submit/review reports, chapters

Date	Duration	Description
3/30/07		PDEIS – Submit 1 st draft
3/30 – 7/13/07	15 weeks	Review, edit and revise up to 2 drafts, DEIS printed and mailed
7/20/07		EPA publishes USFS drafted notice in FR; DEIS publication date; start public comment period
7/20/07 – 9/18/07	60 days	Public comment period
At least 2 weeks before end of comment period		Public hearings
9/18/07		End DEIS public comment period
Final EIS (Actual schedule to be finalized upon close of public comment period)		
9/19-11/17/07-	~ 8 weeks	Review of comments; Content Analysis prepared; work on PFEIS
11/17/07		PFEIS with Responses to Comments – Submit 1 st draft
11/19/07-1/14/08	8 weeks	Review, edit, and revise 2 drafts, FEIS printed and mailed
1/18/08		EPA publishes USFS drafted notice in FR; FEIS publication date
1/21-3/21/08	60 days	Prepare draft joint ROD for review; ROD printed and mailed
3/28/08*		Notice in FR; ROD publication date

*The earliest legal date for the state ROD would be 15 days after publication of the final EIS; the earliest legal date for the federal ROD would be 30 days after publication of final EIS. A joint ROD is preferred.

The contractor is expected to review the existing information and assist in identifying supplemental data and information necessary for the completion of a defensible EIS. Genesis will then gather the supplemental information and/or a change-of-scope order will be issued to the contractor to gather this information.

The contractor must submit a month-by-month schedule for project completion, which identifies all activities and interim deliverables to the completion of the final EIS. The schedule should identify where it can be tightened or slackened to meet specific project needs. The contractor should also demonstrate its ability to maintain quality under tight timeframes.

3.2.2 Resources. The contractor will arrange any site tours by its personnel. The contractor will furnish all personnel, facilities, materials, experienced labor, and supplies (unless otherwise stated herein) necessary to complete the scope of work. DEQ will provide the following:

- Genesis' operating permit application, Plan of Operations and Reclamation Plan.
- Genesis' applications for water quality permits and any other state or federal permit or license applications and supporting documentation.
- Any preliminary alternatives developed by DEQ and USFS.
- Copies of MMRA, MWQA, MCAA, and MEPA, statutes and regulations. The USFS will provide copies of applicable federal statutes, regulations, presidential orders, and handbooks per its MOU with DEQ.
- Existing baseline environmental studies applicable to the operating permit and any additional information, data, or clarification relating to the proposal.
- Consultation and coordination with technical staff as needed and sign-off on all external correspondence and camera-ready documents.
- Mailing lists for public distribution of the document. The USFS will provide mailing labels for distribution of the paper copies and CDs.

For the purposes of preparing a proposal, offerors are requested to review available information on file with DEQ.

3.2.3 Reports, Deliverables, and Scope of Work

3.2.3.1 The objective of this procurement is to obtain third-party contractor support to help DEQ and USFS technical staff review Genesis' proposed Troy Mine Revised Reclamation Plan permit amendment for completeness and technical adequacy and to prepare draft and final EISs on the environmental impacts of the proposed action.

The EIS must be prepared in a format consistent with MEPA (specifically, 75-1-101 *et seq.*, MCA, and ARM 17.4.601 *et seq.*) and NEPA (42 U.S.C. 4321-4347 and 40 CFR Parts 1500-1508).

The EIS and Specialist Reports must be written following the Government Printing Office (GPO) Style Manual and Shipley's Style Guide. The USFS will provide the contractor with templates for the EIS and individual Specialist Reports that contain format (style) and organization of such. The draft template is contained in Appendix D. The USFS will also provide the contractor with Publication Requirements and documentation on compliance with Section 508 of the Rehabilitation Act, 29 U.S.C. 794d. The contractor will produce a Microsoft Word 2000 version or higher of the documents and a bookmarked pdf (portable document format) version that is ready to post on the FS and DEQ web sites.

The purpose of the EIS is to identify the environmental impacts of the proposed action and reasonable alternatives required by MEPA and NEPA, including no action, so that DEQ and USFS can comply with MEPA and NEPA and make informed permit decisions and approvals relative to each agency's regulatory authorities. In addition the contractor will provide information for the EIS that will help DEQ and USFS make the findings required for any other necessary permits.

The USFS will take the lead in preparing the Scoping Content Analysis Reports as allowed under its MOU with DEQ. The contractor, in consultation with DEQ and USFS, will be required to critically review the Content Analysis Reports containing all substantive scoping comments and be familiar with the project and alternatives to identify and respond to issues in the EIS.

3.2.3.2 *EIS Content Requirements*

- SUMMARY (maximum of 15 pages)
- CHAPTER 1 PURPOSE AND NEED FOR ACTION
- CHAPTER 2 ALTERNATIVES, INCLUDING THE PROPOSED ACTION: (This chapter includes the Description of Alternatives, Alternatives Considered but Dismissed, Comparison of Alternatives, and Comparison of Impacts.)
- CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES
- CHAPTER 4 CONSULTATION AND COORDINATION: (This chapter contains the following main headings: Preparers and Contributors, and List of Agencies, Organizations and Individuals Receiving the Draft/Final EIS.)
- INDEX

- LIST OF ACRONYMS
- GLOSSARY
- REFERENCES
- APPENDICES (includes RESPONSES TO PUBLIC COMMENTS in the Final EIS)

3.2.3.3 *Technical Support Documents.* if needed, will be prepared to document detailed technical analyses used to develop the manuscripts used in the EIS. Contractor will identify the disciplines for which technical support documents are proposed. Copies of these documents and other appropriate working papers must be delivered to DEQ as completed but no later than the end of the project. All technical support documentation and all graphics will also be supplied in both hard copy and on CD in Microsoft Word 2000 or higher. Text and graphics will also be presented as a readable, bookmarked, Section 508 compliant pdf file suitable for posting on DEQ's and the USFS's web sites and subsequent use by the general public (this means file size will be manageable for downloading over a dial-up internet connection). Maps will be constructed using ArcGIS desktop version 9.x. All electronic maps should use the projected coordinate system, Universal Transverse Mercator (UTM) Zone 11, with a Datum of NAD83 (North American Datum). In ArcMap this is written as the "Spatial Reference: NAD_1983_UTM_Zone_11. All GIS layers will have completed metadata according to Federal Geographic Data Committee (FGDC) standards. Final maps should be submitted with the .mxd (ArcMap map document) and all layers (coverages, shapefiles or personal geodatabase) in one directory (this enables any map to be manipulated or reproduced) accompanied with a pdf file of the final layout view.

3.2.3.4 *Preliminary List of Issues and Concerns* to be considered in the EIS.

The list of issues below is preliminary. DEQ and USFS will hold public scoping meetings as part of the EIS process to further identify and clarify issues.

- a. Air quality – blowing dust from the tailings impoundment has been an issue in the past.
- b. Surface and ground water quality – the major issue associated with this project is the long-term treatment and disposal of mine discharge water. This issue will result in at least one or two alternatives to the proposed revised Reclamation Plan. Another related issue is potential contamination of groundwater beneath the tailings impoundment. Stanley Creek is listed as partially impaired on the State of Montana's 2004 503(d) list and Lake Creek is listed as threatened.
- c. Wetlands – the creation of wetlands at the tailings impoundment site.
- d. Subsidence – reclamation of potential future subsidence related to mining.
- e. Tailings impoundment stability – no problems to date; a long-term stability report has been completed.
- f. Effects on fisheries and wildlife - potential effects to fisheries based on water quality degradation. Short-term impacts to wildlife during implementation of the reclamation plan.

- g. Vegetation and noxious weeds. Several species of noxious weeds are prevalent in the area and prolific on disturbed soils. Vegetation recovery testing has been ongoing on both the tailings impoundment and mill site.
- h. Threatened, endangered, and sensitive species (TE&S) – short-term impact to TE&S (grizzly bear) during the reclamation phase and long-term impacts to bull trout.
- i. Soils – alternative sites for cover soil to be used for reclamation and the volume of soil available for the reclamation cover.

3.2.3.5 QA/QC

- a. All text submitted for review and approval must be edited consistent with the GPO Style Manual, the Shipley Style Manual and the USFS approved templates, supplemented with DEQ guidelines. Text will be submitted in both hard copy and on CD in Microsoft Word 2000. Text and graphics will also be presented as a readable, bookmarked pdf document suitable for posting on DEQ's and the USFS's web sites and subsequent use by the general public (this means file size will be manageable for downloading over a dial-up internet connection and that all documents be section 508 compliant). Maps will be constructed using ArcGIS desktop version 9.x. All GIS layers will have completed metadata at FDGC standards. Final maps should be submitted with the .mxd and all layers (coverages, shapefiles or personal geodatabase) in one directory (this enables any map to be manipulated or reproduced) accompanied with a pdf of the final layout view.
- b. It is expected that the contractor's staff will be experienced in the preparation of MEPA and NEPA documents, be capable of close coordination with agency technical staff, and be self-directed technical experts. It is expected that contractor's staff will have experience with hard rock mine projects. **DEQ and USFS will not write the technical analysis for the contractor.** Contractor's staff is expected to analyze the data, determine impacts and develop mitigations and/or alternatives. All conclusions, determinations, mitigations, and alternatives will be finalized in consultation with DEQ and USFS staff prior to inclusion in any phase of the document.
- c. **The EIS must be clear and concise, internally consistent, grammatically correct, and written in plain language that will be understandable to the average 8th grade reader.** If practicable, the document is expected to be no more than 100 to 150 pages long, not including appendices and technical support documents.
- d. All text submitted must comply with a performance verification plan developed by the contractor and agreed upon by DEQ and USFS.

3.2.4 Text Revisions. The project schedule assumes two revisions of the draft and one revision of the final document to obtain an approved camera-ready copy of the EIS. Additional revisions may be necessary. Turn-around time for additional revisions will be specified by DEQ and USFS, but will be no longer than 14 calendar days. The specific number of documents and place of delivery are addressed in Section 3.2.7 below.

Additional revisions will be authorized with a change of scope and are not to be considered in contractor's cost estimate.

The DEQ and USFS reserve the right to make all final edits on MEPA/NEPA documents. The DEQ and USFS also reserve the right to refuse or include individual reports or studies.

3.2.5 Agency and Public Meetings. The contractor will meet with DEQ and USFS personnel at the onset of the contract and periodically thereafter as necessary. At least two meetings are expected during preparation of the draft EIS and another two meetings for the final EIS to receive input from DEQ and USFS. These meetings should be structured to comply with the inter-disciplinary requirements of MEPA and NEPA.

DEQ and USFS anticipate conducting scoping meetings in Libby, MT and other possible locations in the surrounding area. Locations of scoping meetings and hearings on the draft EIS will be determined at a later date. The USFS will take the lead in preparing the Scoping Content Analysis Reports as allowed under its MOU with DEQ. The contractor is expected to attend the scoping meetings and to prepare and distribute a Scoping Report summarizing the issues raised and identified the Scoping Content Analysis Reports. If scoping is completed prior to selection of a contractor, the contractor will need only attend and report on the public hearings on the draft EIS. However, the contractor will still need to work with DEQ and the USFS to prepare and distribute the Scoping Report if it had not already been prepared and distributed.

Frequent telephone conversations with DEQ and USFS staff are anticipated. Meetings with DEQ and USFS staff will likely be held in Missoula. Regular weekly or biweekly coordination and status conference calls with DEQ, USFS, contractor, and Genesis staff will be required.

The contractor is required to meet with DEQ and USFS personnel, or designated representatives, to resolve technical or contractual problems that may occur during the term of the contract. Meetings will occur as problems arise and will be coordinated by DEQ. The contractor will be given a minimum of 3 full working days notice of meeting date, time, and location. Face to face meetings are desirable. However, at the contractor's option and expense, a conference call meeting may be substituted. Consistent failure to participate in problem resolution meetings (two consecutive missed or rescheduled meetings), or to make a good faith effort to resolve problems, may result in termination of the contract.

3.2.6 Supervision/Direction. Contractor will work under the general direction of DEQ. Contractor will work with DEQ and the USFS, for USFS related issues and resources. Copies of all appropriate working papers and correspondence must be provided to DEQ and to the USFS.

3.2.7 Number of Copies and Place of Delivery.

3.2.7.1 Draft EIS

- a. Twelve copies of the preliminary draft EIS will be delivered to DEQ (6) and the USFS (6) for internal review. Additional copies will be required for cooperating federal agencies and participating state agencies.
- b. Twelve copies, six to each agency, will be required for each revision that results from the initial review. Additional copies will be required for cooperating federal agencies and participating state agencies.
- c. One copy of the camera-ready document will be delivered to DEQ for sign-off.
- d. Approximately 300 copies of the draft EIS must be printed, 300 CDs created, and all copies distributed to the public by the contractor. (The USFS will provide mailing labels for distribution of the paper copies and CDs.)
- e. Any increase in the above number of documents will be addressed in a change-of-scope request.

3.2.7.2 Final EIS

The process and number of copies outlined above would be repeated for the final EIS.

SECTION 4: OFFEROR QUALIFICATIONS

4.0 STATE'S RIGHT TO INVESTIGATE AND REJECT

The State may make such investigations as deemed necessary to determine the ability of the offeror to provide the supplies and/or perform the services specified. The State reserves the right to reject any proposal if the evidence submitted by, or investigation of, the offeror fails to satisfy the State that the offeror is properly qualified to carry out the obligations of the contract. *This includes the State's ability to reject the proposal based on negative references.*

4.1 OFFEROR INFORMATIONAL REQUIREMENTS

In determining the capabilities of an offeror to perform the services specified herein, the following informational requirements must be met by the offeror. **THE RESPONSE “(OFFEROR’S NAME) UNDERSTANDS AND WILL COMPLY” MAY NOT BE APPROPRIATE FOR THIS SECTION.**

Note: Each item must be thoroughly addressed. Offerors taking exception to any requirements listed in this section may be found non-responsive or be subject to point deductions.

4.1.1 References. Offeror shall provide a minimum of two references that are using services of the type proposed in this RFP. The references may include state or federal government or universities where the offeror, preferably within the last 10 years, has successfully completed environmental assessments or environmental impact statements on hard rock mine permitting actions within similar time constraints. At a minimum, the offeror shall provide the company name, the location where the services were provided, contact person(s), customer's telephone number, e-mail address, a complete description of the service type, and dates the services were provided. These references may be contacted to verify offeror's ability to perform the contract. The State reserves the right to use any information or additional references deemed necessary to establish the ability of the offeror to perform the conditions of the contract. Negative references may be grounds for proposal disqualification.

4.1.2 Resumes/Company Profile and Experience. Offeror shall specify how long the individual/company submitting the proposal has been in the business of providing services similar to those requested in this RFP and under what name. Offeror should provide a complete description of any relevant past projects, including the supply/service type and dates the supplies and/or services were provided. A resume or summary of qualifications, work experience, education, skills, etc., which emphasizes previous experience in this area should be provided for all key personnel who will be involved with any aspects of the contract.

4.1.3 Method of Providing Services. Offeror should provide a description of the work plan and the methods to be used that will convincingly demonstrate to the State what the offeror intends to do, the timeframes necessary to accomplish the work, and how the work will be accomplished to meet the contract requirements as more specifically detailed above in Section 3.

4.1.4 Offeror Financial Stability. Offerors shall demonstrate their financial stability to supply and support the services specified by (1) providing financial statements, preferably audited, for five consecutive years immediately preceding the issuance of this RFP, and (2) providing copies of any quarterly financial statements that have been prepared since the end of the period reported by its most recent annual report.

4.1.5 Specific Staff and Conflict of Interest. The offeror's proposal must identify specific management and staff, percentage of time each will spend on the project, and their qualifications including resumes and experience in similar projects. Assigned staff members and subcontractors will be expected to

participate for the duration of the project. Current and anticipated future workloads need to be described to demonstrate availability of identified staff to ensure expeditious completion of the EIS.

DEQ will review each offeror's proposal to determine whether any potential for conflict of interest exists. Conflict of interest in this case prohibits contractors or subcontractors to DEQ from evaluating a proposal they have helped to prepare or from evaluating proposals from a company to which they currently have economic ties.

All proposals must include an appropriate statement of economic interests in Genesis and whether the data to be analyzed are data the offeror or its subcontractors have prepared. Data prepared for other projects may be used, when appropriate, in the evaluation of this project.

SECTION 5: EVALUATION CRITERIA

5.0 EVALUATION CRITERIA

The evaluation committee will review and evaluate the offers according to the following criteria based on a **maximum possible value of 1000 points**.

SCORING GUIDE

A maximum total number of points available is set out in the RFP's evaluation criteria section. Each category of evaluation criteria will be broken down further with points assigned to each.

Please note that the QA/QC criteria for the final document listed in Section 3.2.3.5 also apply to proposals submitted in response to this RFP. The evaluation committee will regard proposals as samples of the technical output to be expected from offerors. In recent years, many proposals for other projects have quickly been eliminated from further consideration by low scores due to obvious typos, sloppy writing, and careless editing. Recognizing that much of the material in proposals will be pre-written and standardized, the evaluation committee will pay particular attention to new, project-specific sections and will be more likely to be impressed by thoughtful, carefully written and edited analysis than by glossy pictures of facilities and lists of every project ever worked on by staff members.

CRITERION	POINTS
Proposal _____ points, of 600 possible points	
Explanation of offeror's role in working with DEQ and USFS (team organization, communication, coordination).	50
Annotated outline of EIS.	50
Preparation plan (EIS format, schedule, special concerns identified or anticipated). 1) Explanation of how to identify appropriate alternatives, scope of analysis to evaluate direct, indirect, cumulative impacts (35%) 2) List of planned and existing documents and how they will be used in EIS preparation (20%) 3) Specific management and staff, percentage of time each will spend on EIS, clear and concise commitments of personnel must be provided. Describe how present and projected work loads could limit expeditious completion of the EIS (20%) 4) Schedule for expeditious completion of EIS; month-by-month schedule; activities and interim deliverables (25%)	200
Proposal demonstrates writers' and project manager's experience with and knowledge of MMRA, MWQA, MCAA, MEPA and NEPA and other related state and federal statutes and implementing rules and court cases pertaining to preparation and content of EISs.	50
Proposal demonstrates offeror's ability to produce quality, well-written, error-free, internally consistent documents.	250

Qualifications _____ points, of 100 possible points	
Resumes, qualifications, project-related experience of each person on offeror's project team (management, technical, document production).	100
At least two references using similar services of type requested in RFP. (Government agencies and universities where offeror has successfully completed EAs or EISs on hard rock mine permitting within similar constraints.	Pass/fail
Cost _____ points, of 125 possible points	
Estimated cost to prepare draft EIS: staff hours, labor rates, other direct costs (word processing, graphics, photocopying, travel, per diem, etc.).	100 (Ratio method*)
Itemized budget for application review and preparation of scoping reports, Draft EIS, and any technical reports. Total budget for draft EIS cost not to exceed.	25
Identify reasonable, chargeable rates for personnel and other direct costs for final EIS.	Pass/fail
Proven Ability _____ points, of 175 possible points	
EIS-related documents offeror has prepared showing knowledge and familiarity with MMRA, MFSQ, MWQA, MCAA, MEPA and NEPA as well as other applicable state and federal statutes.	100
Demonstrated ability to maintain quality under tight time frames.	50
Demonstrated financial stability to supply and support EIS preparation.	Pass/fail
How long in business and providing similar services.	25
Conflict of Interest _____ pass/fail	
Statement of no economic interest in Genesis Inc.	Pass/fail
Did offeror or subcontractors provide information for or prepare or assist in preparing Genesis Inc's proposal?	Pass/fail
Total Available Points	1,000

*Ratio Method: $\text{Lowest Responsive Offer Total Cost} \div \text{This Offeror's Total Cost} \times \text{Number of available points} = \text{Award Points}$

Unless otherwise indicated above, scores will be assigned according to the following guide:

Superior Response (95-100%): A superior response will be a highly comprehensive, excellent reply that meets all of the requirements of the areas within that category. In addition, the response covers areas not originally addressed within the RFP category and includes additional information and recommendations that would prove both valuable and beneficial to the agency. This response is considered to be an excellent standard, demonstrating the offeror's authoritative knowledge and understanding of the project.

Very Good Response (85-94%): A very good response will provide useful information, while showing experience and knowledge within the category. The proposal is well thought out and addresses all requirements set forth in the RFP. The offeror provides insight into their expertise, knowledge and understanding of the subject matter.

Good Response (75-84%): A good response meets all the requirements and has demonstrated in a clear and concise manner a thorough knowledge and understanding of the subject matter. This response demonstrates an above average performance with no apparent deficiencies noted.

Fair Response (65-74%): A fair response meets the requirements in an adequate manner. This response demonstrates an ability to comply with guidelines, parameters, and requirements with no additional information put forth by offeror.

Poor Response (60-64%): A poor response minimally meets most requirements set forth in the RFP. The offeror has demonstrated knowledge of the subject matter only.

Failed Response (0-59%): A failed response does not meet the requirements set forth in the RFP. The offeror has not demonstrated knowledge of the subject matter.

SECTION 6: STANDARD CONTRACT INFORMATION

6.0 STANDARD TERMS AND CONDITIONS

The State's standard terms and conditions are attached to this document as Appendix B. Offerors should notify the State of any terms within the standard terms and conditions that either preclude them from responding to the RFP or add unnecessary cost. This notification must be made by the deadline for receipt of written/e-mailed questions or with the offeror's RFP response. Any requests for material, substantive, important exceptions to the standard terms and conditions will be addressed in any formal written addendum issued by the designated representative in charge of the solicitation. The State reserves the right to address any non-material, minor, insubstantial exceptions to the standard terms and conditions with the selected offeror at the time of contract negotiation.

6.1 STANDARD CONTRACT

The State's standard contract is attached to this document as Appendix A. Offerors should notify the State of any terms within the standard contract that either preclude them from responding to the RFP or add unnecessary cost. This notification must be made by the deadline for receipt of written/e-mailed questions or with the offeror's RFP response. Any requests for material, substantive, important exceptions to the standard contract will be addressed in any formal written addendum issued by the designated representative in charge of the solicitation. The State reserves the right to address any non-material, minor, insubstantial exceptions to the standard contract with the selected offeror at the time of contract negotiation.

6.2 ADDITIONAL CONTRACT PROVISIONS AND TERMS

This RFP and any addenda, the offeror's RFP response, including any amendments, a best and final offer, any clarification question responses, and any negotiations shall be included in any resulting contract. The State's standard contract, attached as Appendix A, contains the contract terms and conditions which will form the basis of any contract negotiated between the State and the selected offeror. The contract language contained in Appendix A does not define the total extent of the contract language that may be negotiated. In the event of a dispute as to the duties and responsibilities of the parties under this contract, the contract, along with any attachments prepared by the State, will govern in the same order of precedence as listed in the contract.

6.3 COMPLIANCE WITH LAWS

The Contractor must, in performance of work under this contract, fully comply with all applicable federal, state, or local laws, rules and regulations, including the Montana Human Rights Act, the Civil Rights Act of 1964, the Age Discrimination Act of 1975, the Americans with Disabilities Act of 1990, and Section 504 of the Rehabilitation Act of 1973. Any subletting or subcontracting by the Contractor subjects subcontractors to the same provision. In accordance with Section 49-3-207, MCA, the Contractor agrees that the hiring of persons to perform the contract will be made on the basis of merit and qualifications and there will be no discrimination based upon race, color, religion, creed, political ideas, sex, age, marital status, physical or mental disability, or national origin by the persons performing the contract.

6.4 COMPLIANCE WITH WORKERS' COMPENSATION ACT

The Contractor is required to supply DEQ with proof of compliance with the Montana Workers' Compensation Act while performing work for the State of Montana. (§§39-71-401, 39-71-405, and 39-71-417, MCA.) Neither the Contractor nor its employees are employees of the State. The proof of insurance/exemption must be in the form of workers' compensation insurance, an independent contractor exemption, or documentation of corporate officer status and must be received by Fiscal Services, Department of Environmental Quality, PO

Box 200901, Helena, 59620-0901, within 10 working days of the Request for Documents Notice and must be kept current for the entire term of the contract.

CONTRACTS WILL NOT BE ISSUED TO VENDORS WHO FAIL TO PROVIDE THE REQUIRED DOCUMENTATION WITHIN THE ALLOTTED TIME FRAME.

Coverage may be provided through a private carrier or through the State Compensation Insurance Fund (406) 444-6500. An independent contractor's exemption can be requested through the Department of Labor and Industry, Employment Relations Division (406) 444-1446. Corporate officers must provide documentation of their exempt status.

6.5 CONTRACT TERM

The contract term is for a period of 24 months beginning with the date the contract is signed. Renewals of the contract, by mutual agreement of both parties, may be made at 6-month intervals, or any interval that is advantageous to the State, not to exceed a total of 7 years, at the option of the State.

6.6 CONTRACT TERMINATION

6.6.1 Termination for Cause. Unless otherwise stated, DEQ may, by written notice to the Contractor, terminate the contract in whole or in part at any time the Contractor fails to perform the contract.

6.6.2 Reduction of Funding. The State, at its sole discretion, may terminate or reduce the scope of the contract if available funding is reduced for any reason. (See § 18-4-313(3), MCA.)

6.7 CONTRACTOR PERFORMANCE ASSESSMENTS

6.7.1 Performance Assessment. The State may do assessments of the Contractor's performance. This contract may be terminated for one or more poor performance assessments. Contractors will have the opportunity to respond to poor performance assessments. The State will make any final decision to terminate this contract based on the assessment and any related information, the Contractor's response and the severity of any negative performance assessment. The Contractor will be notified with a justification of contract termination. Performance assessments may be considered in future solicitations.

6.7.2 Retainage. (See Appendix A, Standard Contract, Section 4.7.) Payment will be tied to meeting project deadlines. Progress reports must accompany all billings. Ten percent of the cost of each task order will be withheld until the task is completed to the satisfaction of DEQ and USFS.

6.7.3 Penalties. Failure to satisfactorily fulfill the approved contract or portions of the contract may result in one or more of the following actions:

- a. Disallowance of all or a portion of contractor expenses associated with the unsatisfactory work or late deliverable.
- b. Request that unsatisfactory staff be replaced.
- c. Revision or correction of unsatisfactory deliverable at contractor's expense.
- d. Payment of a stipulated penalty.

6.7.4 Stipulated Penalties. (See Appendix A, Standard Contract, Section 16) The successful offeror shall be liable to DEQ for stipulated penalties as described in this section when one of the failures specified in this section occurs because of circumstances that the offeror could have foreseen or controlled through the

use of due diligence. The offeror shall not be liable for stipulated penalties to the extent a specified failure is caused by force majeure or delays of government agencies. A force majeure shall be a cause entirely outside the control of the offeror or its subcontractors, which delays or prevents performance and which could not have been overcome by due diligence.

The offeror shall notify DEQ in a timely manner when circumstances arise that may or will involve a failure as described below. The offeror's failure to provide timely notice shall result in a waiver of the defenses of force majeure or delays of government agencies.

The following failures shall result in the assessment of the following stipulated penalties against the selected offeror:

- a. For failure to submit deliverables within 7 days of their due date, the contractor shall be assessed \$1,000/day, beginning on the 8th day, unless an extension of time has been granted by DEQ in writing. Such extension shall not be unreasonably withheld if the contractor has diligently pursued and is diligently pursuing completion of the task order. Total of stipulated penalties shall not exceed total cost of the project;
- b. For failure to perform tasks under a task order within 7 days of the allotted time, the contractor shall be assessed \$1,000/day, beginning in the 8th day, unless an extension of time has been granted by DEQ in writing. Such extension shall not be unreasonably withheld if the contractor has diligently pursued and is diligently pursuing completion of the task order. Total of stipulated penalties shall not exceed the total cost of the task order/contract.

Stipulated penalties assessed by DEQ may be withheld from future payments to the contractor. The assessment of stipulated penalties shall not preclude DEQ from invoking other remedies that are available.

6.8 INSURANCE REQUIREMENTS

6.8.1 General Requirements. The Contractor shall maintain for the duration of the contract, at its cost and expense, insurance against claims for injuries to persons or damages to property, including contractual liability, which may arise from or in connection with the performance of the work by the Contractor, agents, employees, representatives, assigns, or subcontractors. This insurance shall cover such claims as may be caused by any negligent act or omission.

6.8.2 Primary Insurance. The Contractor's insurance coverage shall be primary insurance as respect to the State, its officers, officials, employees, and volunteers and shall apply separately to each project or location. Any insurance or self-insurance maintained by the State, its officers, officials, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

6.8.3 Specific Requirements for Commercial General Liability. The Contractor shall purchase and maintain occurrence coverage with combined single limits for bodily injury, personal injury, and property damage of \$500,000 per occurrence and \$1,000,000 aggregate per year to cover such claims as may be caused by any act, omission, or negligence of the Contractor or its officers, agents, representatives, assigns or subcontractors.

6.8.4 Additional Insured Status. The State, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds; for liability arising out of activities performed by or on behalf of the Contractor, including the insured's general supervision of the Contractor; products and completed operations; premises owned, leased, occupied, or used.

6.8.5 Specific Requirements for Automobile Liability. The Contractor shall purchase and maintain occurrence coverage with combined single limits for bodily injury, personal injury, and property damage of \$500,000 per occurrence and \$1,000,000 aggregate per year to cover such claims as may be caused by any

act, omission, or negligence of the Contractor or its officers, agents, representatives, assigns or subcontractors.

6.8.6 Additional Insured Status. The State, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds for automobiles leased, hired, or borrowed by the Contractor.

6.8.7 Specific Requirements for Professional Liability. The Contractor shall purchase and maintain occurrence coverage with combined single limits for each wrongful act of \$1,000,000 per occurrence and \$1,000,000 aggregate per year to cover such claims as may be caused by any act, omission, negligence of the Contractor or its officers, agents, representatives, assigns or subcontractors. Note: if “occurrence” coverage is unavailable or cost prohibitive, the Contractor may provide “claims made” coverage provided the following conditions are met: (1) the commencement date of the contract must not fall outside the effective date of insurance coverage and it will be the retroactive date for insurance coverage in future years; and (2) the claims made policy must have three years of additional tail, to commence at the conclusion of the contract at the discretion of the agency and with the prior approval of DEQ, for claims that are made (filed) after the cancellation or expiration date of the policy.

6.8.8 Deductibles and Self-Insured Retentions. Any deductible or self-insured retention must be declared to and approved by DEQ. At DEQ’s request either: (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the State, its officers, employees, and volunteers; or (2) at the expense of the Contractor, the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claims administration, and defense expenses.

6.8.9 Certificates of Insurance/Endorsements. Insurance must be placed with an insurer with a Best’s rating of no less than A-. Contractor shall provide DEQ with one or more certificates of insurance certifying that contractor has obtained the required insurance. The certificate must also include the State’s contract number. This insurance must be maintained for the duration of the contract. DEQ must receive all required certificates and endorsements within 10 days from the date of the Request for Documents notice before a contract will be issued. Work may not commence until a contract is in place. The Contractor must notify the State immediately, of any material change in insurance coverage, such as changes in limits, coverage, change in status of policy, etc. The State reserves the right to require complete copies of insurance policies at all times.

6.9 INTELLECTUAL PROPERTY

All work products of Contractor generated in whole or in part under the contract shall become the sole and separate property of DEQ. Any other ownership interest or other right to use any work product generated under the contract shall be approved in writing in advance by DEQ. Any discovery or invention made, or data or text developed, or under development, as a result of work conducted under the contract is subject to MCA requirements and regulations pertaining to reporting and patent rights to copyrights and rights in data. In any event, DEQ shall be deemed granted a royalty-free, nonexclusive and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use any work, patent or copyright developed under the contract.

6.10 PROTEST PROCEDURE

Offerors may protest an RFP or award of a contract per section 18-4-242, MCA, and ARM 2.5.406. The protest must be in writing and state in detail all of the protestor’s objections. The complete protest must be submitted to DEQ no later than the close of business 14 calendar days after the execution of the contract in question. If the 14th day falls on a Saturday, Sunday, or legal holiday, the protest is due at the end of the next business day. The State is under no obligation to delay, halt, or modify the procurement process pending the result of a protest, contested case proceeding, or judicial review.

6.11 SUBCONTRACTORS

The selected offeror will be the prime contractor if a contract is awarded and shall be responsible, in total, for all work of any subcontractors. All subcontractors, if any, must be listed in the proposal. The State reserves the right to approve all subcontractors. The Contractor shall be responsible to the State for the acts and omissions of all subcontractors or agents and of persons directly or indirectly employed by such subcontractors, and for the acts and omissions of persons employed directly by the Contractor. Further, nothing contained within this document or any contract documents created as a result of any contract awards derived from this RFP shall create any contractual relationships between any subcontractor and the State.

APPENDIX A: STANDARD CONTRACT

- 1.0 Parties
- 2.0 Effective Date, Duration and Renewal
- 3.0 Services
- 4.0 Consideration/Payment
- 5.0 Authorization to Proceed
- 6.0 Access and Retention of Records
- 7.0 Assignment, Transfer and Subcontracting
- 8.0 Hold Harmless/Indemnification
- 9.0 Required Insurance
- 10.0 Independent Contractor Status
- 11.0 Conflict of Interest
- 12.0 Compliance with Workers' Compensation Act
- 13.0 Compliance with Laws
- 14.0 Intellectual Property
- 15.0 Contract Termination
- 16.0 Contractor Performance Assessments
- 17.0 Liaison and Service of Notices
- 18.0 Meetings
- 19.0 Contractor Performance Assessments
- 20.0 Choice of Law and Venue
- 21.0 Scope, Amendment and Interpretation
- 22.0 Execution

**PREPARING AN ENVIRONMENTAL IMPACT STATEMENT
FOR
GENESIS' TROY MINE
REVISED RECLAMATION PLAN EIS
DEQ CONTRACT #106005**

1.0 PARTIES

THIS CONTRACT, is entered into by and between the State of Montana, Department of Environmental Quality, (hereinafter referred to as "the State" or "DEQ"), whose address and phone number are 1520 E. Sixth St., PO Box 200901, Helena, MT 59620-0901, 406-444-2544 and (insert name of contractor), (hereinafter referred to as the "Contractor"), whose nine digit Federal ID Number, address, and phone number are (insert federal id number), (insert address) and (insert phone number).

THE PARTIES AGREE AS FOLLOWS:

2.0 EFFECTIVE DATE, DURATION, AND RENEWAL

2.1 Contract Term. Contract shall take effect upon execution by DEQ and Contractor, and the effective date shall be the later of the dates of signature by DEQ and Contractor. Contract shall remain in effect for an initial period of approximately 24 months from the effective date, unless Contract is terminated or modified as provided herein. (Mont. Code Ann. § 18-4-313.)

2.2 Contract Renewal. This contract may, upon mutual agreement between the parties and according to the terms of the existing contract, be renewed in two-year intervals, or any interval that is advantageous to the State, for a period not to exceed a total of seven (7) years. This renewal is dependent upon funding from Genesis, Inc., the permit applicant, hereinafter referred to as Genesis.

3.0 SERVICES

3.1 Contractor agrees to provide to the State technical consulting services for the purpose of assisting DEQ in reviewing the permit applications and preparing an environmental impact statement (EIS) to disclose the potential impacts of implementing Genesis' proposed Troy Mine Revised Reclamation Plan [RFP 106005]. The specific services shall be assigned in task orders executed subsequent to or concurrent with this contract. The services to be provided, and the budgets for such services, shall be described herein and as mutually agreed to in each task order.

3.2 Throughout the term of Contract and thereafter, Contractor shall upon request of DEQ provide witnesses and documentation of litigation assistance activities performed and costs incurred under Contract.

3.3 Contractor is required to meet with DEQ personnel, or designated representatives, to resolve technical or contractual problems that may occur during the term of the contract at no additional cost to the State. Meetings shall occur as problems arise and shall be coordinated by DEQ. Contractor shall be given a minimum of three (3) full working days notice of meeting date, time, and location. Face to face meetings are desired. However, at the Contractor's option and expense, a conference call meeting may be substituted. Consistent failure to participate in problem resolution meetings two (2) consecutive missed or rescheduled meetings, or to make a good faith effort to resolve problems, may result in termination of the contract.

4.0 CONSIDERATION/PAYMENT

4.1 Not-to-Exceed Costs. Costs for all work to be done on this project through the completion of the EIS will not exceed \$_____ unless cost changes are agreed to by DEQ as described in Section 4.4.

Contractor is not allowed to perform any work under Contract or accrue any expenses against Contract until a task order is issued pursuant to Section 5. Total compensation paid to Contractor is dependent on actual allowable costs incurred by Contractor within the scope of work and budget assigned in task orders issued under Contract. Maximum compensation amounts are based on the assumptions listed in Contractor's proposal and further negotiations with DEQ. Should those assumptions be incorrect, such that costs would be greater than agreed to in Contract, Contractor and DEQ will renegotiate costs as described below. DEQ agrees to pay Contractor as stated below:

4.2 Allowable Costs. Rates shall be reasonable and necessary and shall comply with the standards set forth for allowable costs in Federal Acquisition Regulations (FAR) of the Code of Federal Regulations (CFR) 48 CFR Part 31 Subpart 31.2 "Contracts with Commercial Organizations".

4.2.1 Labor Rates. Labor Rates have been negotiated with the selected Contractor. The labor rates charged under Contract are loaded with actual labor rates, overhead expenses, and profit margins. These loaded labor rates must also comply with the requirements of Section 4.3. Labor rates and a list of key personnel for Contractor and its subcontractor are included in EXHIBIT I. The labor rates may be changed once annually by Contractor and its subcontractor by submitting written request and providing a new EXHIBIT I; such request may not unreasonably be withheld by DEQ but may require additional documentation in cases where individual increases exceed 7%. The annual labor rate changes must be approved in advance by DEQ prior to being authorized for use by Contractor. Effective date of the new labor rates will be designated by DEQ in a written approval letter but in any case may not be earlier than the date of request of such labor rate changes by Contractor which may not be more than five days prior to receipt of such request by DEQ.

4.2.2 Other Direct Expenses. Other direct expenses are all other identifiable costs that Contractor incurred directly in performance of services under Contract. Direct expenses shall be specifically budgeted in task orders, and all direct expense costs shall be documented. Contractor warrants that there is no duplication of costs between other direct expenses and any other cost category under Contract. Direct expense categories and allowable rates are defined in EXHIBIT II of Contract. Changes in allowed direct expense rates require the same request, documentation, and DEQ approval as required for labor rates in Section 4.2.1. Direct expenses include the following items:

- a. Services directly applicable to Contract, such as commercial printing and binding, automatic typing equipment services, and facilities rental.
- b. Reproduction costs, such as printing, photostatting, or multilithing of reports and specifications. Photocopying shall be reimbursed at actual cost, if Contractor has provided and DEQ has approved the documentation for actual costs. Otherwise, reproduction costs shall be calculated at the rate of \$.05 per page.
- c. Communication expenses, such as long distance telephone, telegraph, cable, express charges, and postage other than that used for general correspondence.
- d. Transportation costs, including air and ground travel. Contractor-owned vehicles shall be used whenever possible. Contractor or personal vehicles shall be charged out at a cost not to exceed the United States Internal Revenue Service approved mileage rate then applicable which is currently \$0.365. Rental vehicles shall not be used unless determined necessary by DEQ. Rental vehicles shall always be the least expensive available for the shortest-term possible, if used at all. Mileage rates shall not be paid on rental vehicles. DEQ may authorize the leasing (the long-term rental) of vehicles in accordance with Section 4.2.2.i.
- e. Meals/lodging and other travel expenses of Contractor's employees away from their home office to perform services directly applicable to Contract. For travel within the

State of Montana, the per diem rate for meals shall be as specified in § 2-18-501(1), MCA. Outside of Montana, the per diem rate for meals shall be as specified in § 2-18-501(2)(b), MCA. Reimbursement for lodging costs inside and outside the state shall be no greater than the federal lodging rates found at the GSA website, which is currently \$60 for in-state lodging except for high-cost cities. Contractor shall ensure that all travel charges shall correspond with individual labor costs billed to DEQ. Lodging expenses incurred in high-cost cities, if allowable, shall be reimbursed according to § 2-18-501(3), MCA.

f. Laboratory testing and analysis costs as required in each task order

g. Subcontractor costs charged to Contractor for services or materials that are directly applicable to Contract. Any subcontractor charges that would qualify as "other direct expenses" if they were charges of Contractor shall be subject to the terms of this Section 4.2.2. All subcontracted services shall be obtained in accordance with Section 7.1 (Subcontracted Services).

h. Direct expense items not listed in Section 4.2.2(a) through (g) may be reimbursable by DEQ upon mutual discussion and written approval by DEQ prior to expenditure.

i. Justified rental fees. Contractor shall obtain DEQ approval of any equipment rental fees to be charged to DEQ under Contract. Contractor shall provide an analysis justifying the proposed rental fees, considering such factors as purchase price and purchase date, operational life, maintenance costs, salvage value, and average annual use. Contractor shall provide the specific equation used to calculate the rental rate, and all documentation shall be submitted for approval prior to any charges being submitted for payment.

4.2.3. U.S. Funds. All prices and payments shall be in U.S. dollars.

4.3 Contractor Cost Warranties

4.3.1 Contractor warrants that the loaded hourly rates charged to DEQ under Contract are and shall continue to be as low or lower than those Contractor charges its most favored, similarly situated, customer for comparable services under similar terms and conditions.

4.3.2 Contractor warrants that there is no duplication of costs between the loaded labor rates charges and any other cost category under Contract.

4.3.3 Contractor warrants that the cost and pricing data it submits for purposes of negotiating the price for Contract or any future modifications, task orders, or subcontracts are current, accurate, complete, and supported by Contractor's books and records.

4.3.4 Should Contractor breach any of the warranties herein, DEQ may take one or more of the following actions:

- a. DEQ may seek reimbursement from Contractor for any amount overcharged;
- b. DEQ may deduct the amount overcharged from future payments to Contractor under Contract; or

- c. DEQ may terminate Contract for breach pursuant to Section 15, and may seek damages from Contractor.

4.4 Budget Adjustment. Contractor shall use best efforts to complete the work within the budgets identified in Contract and subsequent task orders, and shall keep DEQ informed of progress toward that end so that budgets and/or the work effort may be controlled or adjusted through negotiated modifications, if necessary.

In the event the services required in any task order cannot, in Contractor's opinion, be completed within the specified budget, Contractor shall inform DEQ in writing in a timely manner of the additional amounts considered necessary to complete any given work element. DEQ and Contractor may then by mutual agreement modify the task order so that a new budget can be authorized by DEQ.

If Contractor makes expenditures or incurs obligations in excess of the budgets established or adjusted, it shall do so at its own risk, and DEQ is not obligated to pay Contractor beyond established or adjusted budgets. Unless otherwise notified by DEQ, Contractor shall continue with any parts of the work for which initial budgets remain adequate or for which adjusted budgets and/or task orders have been formally agreed upon.

4.5 Litigation Assistance. Throughout the term of Contract and thereafter, Contractor shall upon request of DEQ provide witnesses and documentation of activities performed and costs incurred under Contract. Contractor shall be entitled to reasonable compensation for any such activities performed, except in suits or claims between DEQ and Contractor.

4.6 Payment for Services. Payment for Contractor's services shall be made according to the following process:

4.6.1 Contractor shall submit a monthly billing statement to DEQ for services performed under Contract. The billing statement shall include the following:

- a. A separate invoice for each task order executed under Contract. Invoices shall identify actual costs including subcontractor charges incurred during the preceding billing period;
- b. An estimate of the costs including subcontractor charges that Contractor expects to be incurred during the current billing period.
- c. The following statement of the expiration date of the task order: "This task order shall expire on [date]."

4.6.2 Invoices shall itemize costs in sufficient detail to allow evaluation by DEQ of the reasonableness of the work and the charges. Itemized information shall include, without limitation:

- a. The Contract number, task order number, invoice number, the site name, the project name, the billing period, and a general description of the services provided during the period.
- b. Names of all personnel who worked on the project during the billing period, the number of hours worked and the applicable personnel category and hourly rates for each person, the total paid each person, the total paid all personnel on the task order.
- c. An itemization of travel costs, indicating trip destinations, number of trips, cost of travel, meals, lodging, and total cost. Transportation costs shall correspond with personal

service charges for the period. Receipts for lodging, airfare and ground transportation shall be provided.

d. An itemized description of all other direct expenses, including a description of any equipment or services purchased, and itemization of supplies purchased when the cost exceeds \$100. Receipts for all direct expenses, except Contractor photocopying, shall be provided.

e. The signed certificate of Contractor's authorized and responsible accounting or financial manager stating:

"This invoice is approved for (amount). I certify that it is mathematically and clerically correct, and that it is a legal, proper, and necessary charge in accordance with Contract".

4.6.3 DEQ shall have the right at any time to request additional documentation concerning Contractor costs, including any records required to be kept by Contractor pursuant to Section 6. DEQ may dispute all or a portion of any billing statement, and may withhold payment until the dispute is resolved to DEQ's satisfaction. DEQ shall notify Contractor in writing of any disputed amounts in Contractor's invoices. In the event of disputed billing, only that portion of payment disputed shall be withheld, and any undisputed portion shall be paid in accordance with the payment provisions outlined in this section.

If Contractor fails to comply with the recordkeeping requirements of Contract all payments may be withheld until verification of compliance acceptable to DEQ or until a final settlement following termination of Contract.

4.6.4 Contractor understands and agrees that DEQ is dependent upon the permittee and state appropriations for its funding and that actions by permittee or the state legislature may preclude funding Contract (and/or any task order) through the completion date stated in Section 2. In such event, the parties agree that DEQ may set a new completion date or terminate Contract (and/or any task order) immediately, depending upon the funding available.

4.6.5 Subject to DEQ approval of the work performed under Contract and to the appropriations and disputed billing provisions set forth above, after receipt of Contractor's invoices DEQ shall reimburse Contractor for the allowable costs incurred during the billing period within the time specified by law.

4.6.6 Ten percent of the total of Contract and therefore 10 percent of each invoice for work performed under Contract shall be retained by DEQ until DEQ's acceptance of all tasks and work products due from Contractor. Such acceptance shall not be unreasonably withheld. Upon written request of Contractor, DEQ may release up to a maximum of 50 percent of the retainage dependent on status of Contract and work performed to date of the request. In no case, however, shall DEQ accept the release of a percentage of the retainage greater than the percentage of work performed. Following DEQ's acceptance, Contractor shall invoice DEQ separately for the retainage and DEQ shall pay Contractor the retainage within 30 days of receipt of that invoice.

4.7 Retainage for Faithful Performance. DEQ shall retain 10 percent of each invoice until completion of all work requirements and delivery of all required deliverables. The purpose of the retainage shall be to secure Contractor's faithful performance of all provisions of Contract and any task orders issued pursuant thereto. Faithful performance shall include, without limitation, timely delivery of work products or services, compliance with the recordkeeping requirements of Contract, timely progression towards specified deadlines, and provision of all required services and work products in a satisfactory manner. DEQ shall not

release the retainage until it determines that Contractor has successfully completed all services required by Contract and task orders.

DEQ may determine not to pay any or all of the retainage if it concludes that the work and deliverables required under Contract were not acceptable and in that event DEQ shall send written notice of such determination. Contractor shall have the right to dispute DEQ determination of nonperformance but may not stay payment under the Letter. Disputes arising under this paragraph shall be subject to the procedures of Section 19.

The amount of the retainage shall not constitute a measure of damages or a limit on damages to which DEQ is entitled for failure of performance or other breach by Contractor.

4.8 Key Personnel. DEQ shall identify which of Contractor's employees, if any, are key personnel for purposes of performing work under Contract. Key personnel shall be identified in EXHIBIT I or in a task order issued pursuant to Contract. No substitution of key personnel shall be allowed without the prior written permission of DEQ. Key personnel are generally Contractor's employees who provide professional and technical services in the field or in the office and whose work is directly related to the work to be performed under a task order issued by the DEQ. Key personnel do not include administrative support staff and GIS/CAD personnel.

Contractor shall furnish DEQ with a resume or an experience statement with pertinent information as to education, experience with similar projects and other evidence as to qualifications for each employee that shall work directly on or for the benefit of Contract. Contractor shall not assign any employee to any task order under Contract, either initially or as a replacement, against whom DEQ may have a reasonable objection.

4.9 Final Payment [§ 28-2-723, MCA]. Upon satisfactory completion of the work performed under Contract, and as a condition before final payment under Contract or as a termination settlement under Contract, Contractor shall execute and deliver to DEQ a release, to be effective upon payment, of all claims against DEQ arising under or by virtue of Contract except claims that are specifically exempted by Contractor to be set forth therein. Unless otherwise provided in Contract, by State law or otherwise agreed to by the parties to Contract, final payment under Contract or settlement upon termination of Contract shall not constitute a waiver of DEQ's claims against Contractor or its sureties under Contract or against the Retainage provided pursuant to Section 4.7.

5.0 AUTHORIZATION TO PROCEED

5.1 Contractor may not begin work on any services under Agreement until receipt of written authorization from DEQ. This authorization shall be in the form of a task order agreed to by DEQ and Contractor containing:

- a. A preamble referencing DEQ, Contractor, the project, operable unit (if applicable), task, and Contract.
- b. A description of the services to be provided (nature, scope, and extent of work to be performed), the deliverable(s) to be provided, time frame and any required due dates for performance, total cost of the services, and payment provisions in accordance with Section 3 of Contract.
- c. Any special conditions not covered in Contract.
- d. Appropriate attachments.
- e. Signatures by authorized representatives of both parties.

- f. A Contractor submitted and DEQ approved Cost or Price Summary Estimate for the task order.

Contractor costs associated with developing and negotiating each task order and developing the budget estimate for each task order shall be borne by Contractor.

5.2 The budget specified in each task order shall be the maximum amount for which DEQ is liable under that task order. DEQ shall have no obligation to pay Contractor for work that exceeds the budget authorized at the time the work is performed. Any increase in a task order budget shall be authorized in a written modification to the task order, signed by DEQ and Contractor.

6.0 ACCESS AND RETENTION OF RECORDS

6.1 Contractor shall maintain books, records, documents, and all other evidence directly pertinent to performance of work under Contract and any modifications and subcontracts [hereinafter referred to in this Section as "records"] in accordance with generally accepted accounting principles. Records required to be kept as part of such documentation include, without limitation, employee daily logs, employee time sheets, employee travel authorizations, and receipts for all direct expenses, including subcontractor costs, procurement of equipment, supplies, and services, travel, rental vehicles, and lodging. Contractor's record files shall also contain all financial information and data used in the documentation of direct labor costs, direct expenses, salary and general overhead costs, and calculation of overhead rates and profit under Contract. Contractor's accounting system shall track expenses by site, by required detail of account coding by Task Order, activity, and operable unit as applicable. The system shall provide control, accountability, and an assurance that funds, property, and other assets are used only for their authorized purposes.

6.2 The Contractor agrees to provide the State, Legislative Auditor or their authorized agents access to any records necessary to determine contract compliance. (Mont. Code Ann. § 18-1-118.)

6.3 The Contractor agrees to create and retain records supporting the services rendered pursuant to Section 3 of this contract for a period of three years after either the completion date of Contract or the conclusion of any claim, litigation or exception relating to this contract taken by the State of Montana or a third party.

6.4 Any audit of Contractor's records during the term of Contract shall be conducted in accordance with generally accepted auditing standards as established by the American Institute of Certified Public Accountants and with established procedures and guidelines of the reviewing or audit agency(ies). The audit shall address financial issues and assess compliance with the terms of Contract. Contractor shall furnish DEQ with a copy of any audit report within thirty (30) days after its issuance. If an audit determines that Contractor has failed to comply with any provision of Contract, including but not limited to the record keeping and reporting requirements, Contractor shall correct such errors or instances of non-compliance.

7.0 ASSIGNMENT, TRANSFER AND SUBCONTRACTING

7.1 Subcontracted Services

7.1.1 Contractor and DEQ agree that no services required under Contract may be performed by a subcontractor unless Contractor and DEQ agree in writing. Contractor shall conduct all procurement of subcontracted services in a manner to provide full and open competition.

7.1.2 Prior to obtaining any subcontracted services in the amount of \$5,000.00 or more, Contractor shall obtain DEQ's written approval of the procurement method, subcontractor, subcontract, the subcontract price and, as applicable, labor rates, overhead rates and any subcontractor fee. Contractor shall provide, if available, copies of the two most recent authorizations from the cognizant federal agency accepting the subcontractor's overhead rates.

7.1.3 Contractor shall not use cost-plus-percentage-of-cost subcontracts, but may use cost plus fixed fee subcontracts. In negotiating subcontractor fees Contractor shall follow the guidelines of 48 CFR § 15.404-4. With DEQ's prior written approval, Contractor may use a time and materials subcontract only if no other type of subcontract is suitable and if the subcontract includes a ceiling price that the subcontractor exceeds at its own risk.

7.1.4 With DEQ's prior written approval, Contractor may use a competitively procured fixed price contract for standardized services or products, such as driller contracts on a per-foot basis or laboratory analysis at standard rates. For such subcontracts, Contractor shall establish price reasonableness, based on such factors as the existence of a catalog price or of a fixed market price for products or services sold in substantial quantities to the general public, or on the regulation of prices by law.

7.1.5 For subcontracts in the amount of \$5,000.00 or more, Contractor shall certify that the subcontractor is in compliance with all provisions of Section 7, with the standard of performance, insurance, and indemnification provisions of Section 9, with the invoice requirements of Section 4.6.

Contractor shall include in all such subcontracts the following provisions in substantially the same form as contained in Contract:

- a. Access and Retention of Records;
- b. Assignment, Transfer and Subcontracting;
- c. Compliance with Laws;
- d. Independent Contractor Status;
- e. Conflict of Interest.

Contractor may submit a written request for a waiver of some or all of the requirements of this subparagraph. Requests for a waiver shall identify the justification for the waiver.

7.1.6 Contractor shall assume responsibility for the professional quality, technical accuracy, timely completion, and coordination of any work product of a subcontractor hired by Contractor.

7.2 **Assignment.** Neither Contract, nor any interest in Contract, shall be assigned or transferred, unless DEQ and Contractor agree in writing. No assignment of Contract shall be effective until the assignee assumes in writing the obligations of the assigning party, and delivers such written assumption to the other original party to Contract. Contractor's use of subcontractors or subsidiary or affiliate firms shall not be considered an assignment of a portion of Contract.

8.0 **HOLD HARMLESS/INDEMNIFICATION**

The Contractor agrees to protect, defend, and save the State, its elected and appointed officials, agents, and employees, while acting within the scope of their duties as such, harmless from and against all claims, demands, causes of action of any kind or character, including the cost of defense thereof, arising in favor of the Contractor's employees or third parties on account of bodily or personal injuries, death, or damage to property arising out of services performed or omissions of services or in any way resulting from the acts or omissions of the Contractor and/or its agents, employees, representatives, assigns, subcontractors, except the sole negligence of the State, under this agreement.

9.0 **REQUIRED INSURANCE**

9.1 **General Requirements.** The Contractor shall maintain for the duration of the contract, at its cost and expense, insurance against claims for injuries to persons or damages to property, including contractual liability, which may arise from or in connection with the performance of the work by the Contractor,

agents, employees, representatives, assigns, or subcontractors. This insurance shall cover such claims as may be caused by any negligent act or omission.

9.2 Primary Insurance. The Contractor's insurance coverage shall be primary insurance as respect to the State, its officers, officials, employees, and volunteers and shall apply separately to each project or location. Any insurance or self-insurance maintained by the State, its officers, officials, employees or volunteers shall be excess of the Contractor's insurance and shall not contribute with it.

9.3 Specific Requirements for Commercial General Liability. The Contractor shall purchase and maintain occurrence coverage with combined single limits for bodily injury, personal injury, and property damage of \$500,000 per occurrence and \$1,000,000 aggregate per year to cover such claims as may be caused by any act, omission, or negligence of the Contractor or its officers, agents, representatives, assigns or subcontractors.

9.4 Additional Insured Status. The State, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds; for liability arising out of activities performed by or on behalf of the Contractor, including the insured's general supervision of the Contractor; products and completed operations; premises owned, leased, occupied, or used.

9.5 Specific Requirements for Automobile Liability. The Contractor shall purchase and maintain occurrence coverage with combined single limits for bodily injury, personal injury, and property damage of \$500,000 per occurrence and \$1,000,000 aggregate per year to cover such claims as may be caused by any act, omission, or negligence of the Contractor or its officers, agents, representatives, assigns or subcontractors.

9.6 Additional Insured Status. The State, its officers, officials, employees, and volunteers are to be covered and listed as additional insureds for automobiles leased, hired, or borrowed by the Contractor.

9.7 Specific Requirements for Professional Liability. The Contractor shall purchase and maintain occurrence coverage with combined single limits for each wrongful act of \$1,000,000 per occurrence and \$1,000,000 aggregate per year to cover such claims as may be caused by any act, omission, negligence of the Contractor or its officers, agents, representatives, assigns or subcontractors. Note: if "occurrence" coverage is unavailable or cost prohibitive, the Contractor may provide "claims made" coverage provided the following conditions are met: (1) the commencement date of the contract must not fall outside the effective date of insurance coverage and it will be the retroactive date for insurance coverage in future years; and (2) the claims made policy must have three years of additional tail, to commence at the conclusion of the contract at the discretion of the agency and with the prior approval of DEQ, for claims that are made (filed) after the cancellation or expiration date of the policy.

9.8 Deductibles and Self-Insured Retentions. Any deductible or self-insured retention must be declared to and approved by DEQ. At DEQ's request either: (1) the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the State, its officers, employees, or volunteers; or (2) at the expense of the Contractor, the Contractor shall procure a bond guaranteeing payment of losses and related investigations, claims administration, and defense expenses.

9.9 Certificate of Insurance/Endorsements. Insurance must be placed with an insurer with a Best's rating of no less than A-. Contractor shall provide DEQ with one or more certificates of insurance certifying that contractor has obtained the required insurance. The certificate must also include the State's contract number. This insurance must be maintained for the duration of the contract. DEQ must receive all required certificates and endorsements within 10 days from the date of the Request for Documents notice before a contract will be issued. Work may not commence until a contract is in place. The Contractor must notify the State immediately, of any material change in insurance coverage, such as changes in limits, coverage, change in status of policy, etc. The State reserves the right to require complete copies of insurance policies at all times.

10.0 INDEPENDENT CONTRACTOR STATUS

It is mutually agreed that Contractor is an independent contractor and is not an employee of DEQ. No agent, employee, or servant of Contractor is or shall be deemed to be the employee, agent, or servant of DEQ. No benefits provided by DEQ to its employees, including but not limited to unemployment and workers' compensation insurance, shall be available to Contractor's employees, agents or servants.

Contractor shall not undertake any of the services required under Contract until it has submitted to DEQ proof of Montana workers' compensation coverage or an approved exemption from such coverage.

11.0 CONFLICT OF INTEREST

Contractor shall notify DEQ of any actual, apparent, or potential organizational or personal conflicts of interest involving any individual performing services under Contract or having access to information regarding Contract. A conflict of interest includes any situation in which Contractor or individual employee of Contractor has personal or business interests which may interfere with the objectivity with which services are performed under Contract for DEQ, including, for example, an independent or outside contractual or employment relationship under which the individual provides consulting or other services for a party that is associated directly or indirectly with the permittee for which the EIS services provided under Contract relate. In the event that a conflict of interest arises, the individual involved shall be disqualified from performing any services under task orders potentially affected by such conflict.

12.0 COMPLIANCE WITH WORKERS' COMPENSATION ACT

The Contractor is required to supply DEQ with proof of compliance with the Montana Workers' Compensation Act while performing work for the State of Montana. (§§39-71-401, 39-71-405, and 39-71-417 MCA.) Neither the Contractor nor its employees are employees of the State. The proof of insurance/exemption must be in the form of workers' compensation insurance, an independent contractor exemption, or documentation of corporate officer status and must be received within 10 working days of the Request for Documents Notice and must be kept current for the entire term of the contract. A renewal document must be sent to the to DEQ, PO Box 200901, Helena, MT 59620-0901, upon expiration.

CONTRACTS WILL NOT BE ISSUED TO VENDORS WHO FAIL TO PROVIDE THE REQUIRED DOCUMENTATION WITHIN THE ALLOTTED TIME FRAME.

Coverage may be provided through a private carrier or through the State Compensation Insurance Fund (406) 444-6500. An independent contractor's exemption can be requested through the Department of Labor and Industry, Employment Relations Division (406) 444-1446. Corporate officers must provide documentation of their exempt status.

13.0 COMPLIANCE WITH LAWS

The Contractor must, in performance of work under this contract, fully comply with all applicable federal, state, or local laws, rules and regulations, including the Montana Human Rights Act, the Civil Rights Act of 1964, the Age Discrimination Act of 1975, the Americans with Disabilities Act of 1990, and Section 504 of the Rehabilitation Act of 1973. Any subletting or subcontracting by the Contractor subjects subcontractors to the same provision. In accordance with section 49-3-207, MCA, the Contractor agrees that the hiring of persons to perform the contract will be made on the basis of merit and qualifications and there will be no discrimination based upon race, color, religion, creed, political ideas, sex, age, marital status, physical or mental disability, or national origin by the persons performing the contract.

14.0 INTELLECTUAL PROPERTY

All work products of Contractor generated in whole or in part under the contract shall become the sole and separate property of DEQ. Any other ownership interest or other right to use any work product generated under the contract shall be approved in writing in advance by DEQ. Any discovery or invention made, or data or text developed, or under development, as a result of work conducted under the contract is subject to MCA requirements and regulations pertaining to reporting and patent rights to copyrights and rights in data. In any event, DEQ shall be deemed granted a royalty-free, nonexclusive and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use any work, patent or copyright developed under the contract.

15.0 CONTRACT TERMINATION

15.1 Termination for Cause. The State may, by written notice to the Contractor, terminate this contract in whole or in part at any time the Contractor fails to perform this contract.

15.2 Reduction of Funding. The State, at its sole discretion, may terminate or reduce the scope of this contract if available funding is reduced for any reason. (See § 18-4-313(3), MCA.)

16.0 CONTRACTOR PERFORMANCE ASSESSMENTS

16.1. Performance Assessment. The State may do assessments of the Contractor's performance. This contract may be terminated for one or more poor performance assessments. Contractors will have the opportunity to respond to poor performance assessments. The State will make any final decision to terminate this contract based on the assessment and any related information, the Contractor's response and the severity of any negative performance assessment. The Contractor will be notified with a justification of contract termination. Performance assessments may be considered in future solicitations.

16.2 Retainage. (See Section 4.7.) Payment will be tied to meeting project deadlines. Progress reports must accompany all billings. Ten percent of the cost of each task order will be withheld until the task is completed to the satisfaction of DEQ and USFS.

16.3 Penalties. Failure to satisfactorily fulfill the approved contract or portions of the contract may result in one or more of the following actions:

- e. Disallowance of all or a portion of contractor expenses associated with the unsatisfactory work or late deliverable.
- f. Request that unsatisfactory staff be replaced.
- g. Revision or correction of unsatisfactory deliverable at contractor's expense.
- h. Payment of a stipulated penalty.

16.4 Stipulated Penalties. The successful offeror shall be liable to DEQ for stipulated penalties as described in this section when one of the failures specified in this section occurs because of circumstances that the offeror could have foreseen or controlled through the use of due diligence. The offeror shall not be liable for stipulated penalties to the extent a specified failure is caused by force majeure or delays of government agencies. A force majeure shall be a cause entirely outside the control of the offeror or its subcontractors, which delays or prevents performance and which could not have been overcome by due diligence.

The offeror shall notify DEQ in a timely manner when circumstances arise that may or will involve a failure as described below. The offeror's failure to provide timely notice shall result in a waiver of the defenses of force majeure or delays of government agencies.

The following failures shall result in the assessment of the following stipulated penalties against the selected offeror:

- c. For failure to submit deliverables within 7 days of their due date, the contractor shall be assessed \$1,000/day, beginning on the 8th day, unless an extension of time has been granted by DEQ in writing. Such extension shall not be unreasonably withheld if the contractor has diligently pursued and is diligently pursuing completion of the task order. Total of stipulated penalties shall not exceed total cost of the project;
- d. For failure to perform tasks under a task order within 7 days of the allotted time, the contractor shall be assessed \$1,000/day, beginning in the 8th day, unless an extension of time has been granted by DEQ in writing. Such extension shall not be unreasonably withheld if the contractor has diligently pursued and is diligently pursuing completion of the task order. Total of stipulated penalties shall not exceed the total cost of the task order/contract.

Stipulated penalties assessed by DEQ may be withheld from future payments to the contractor. The assessment of stipulated penalties shall not preclude DEQ from invoking other remedies that are available.

17.0 LIAISON AND SERVICE OF NOTICES

All project management and coordination on behalf of the State shall be through a single point of contact designated as the State's liaison. Contractor shall designate a liaison that will provide the single point of contact for management and coordination of Contractor's work. All work performed pursuant to this contract shall be coordinated between the State's liaison and the Contractor's liaison.

Kathleen Johnson will be the liaison for the State.
P.O. Box 200901
1520 E. Sixth Avenue
Helena, MT 59620-0901
Telephone: 406-444-1760
Fax: 406-444-4386
E-mail: katiohjohnson@mt.gov

_____ will be the liaison for the Contractor.

_____ (Address)
_____ (City, State, ZIP)
_____ (Telephone #)
_____ (Cell Phone #)
_____ (Fax #)
_____ (E-mail)

The State's liaison and Contractor's liaison may be changed by written notice to the other party. Written notices, requests, or complaints will first be directed to the liaison.

18.0 MEETINGS

The Contractor is required to meet with the State's personnel, or designated representatives, to resolve technical or contractual problems that may occur during the term of the contract or to discuss the progress made by Contractor and the State in the performance of their respective obligations, at no additional cost to the State. Meetings will occur as problems arise and will be coordinated by the State. The Contractor will be given a minimum of three full working days notice of meeting date, time, and location. Face-to-face meetings are desired. However, at the Contractor's option and expense, a conference call meeting may be substituted.

Consistent failure to participate in problem resolution meetings two consecutive missed or rescheduled meetings, or to make a good faith effort to resolve problems, may result in termination of the contract.

19.0 CHOICE OF LAW AND VENUE

This contract is governed by the laws of Montana. The parties agree that any litigation concerning this bid, proposal or subsequent contract must be brought in the First Judicial District in and for the County of Lewis and Clark, State of Montana and each party shall pay its own costs and attorney fees. (See § 18-1-401, MCA.)

20.0 SCOPE, AMENDMENT AND INTERPRETATION

21.1 Contract. This contract consists of (insert number) numbered pages, ____ Exhibits, RFP #105006, as amended and the Contractor's RFP response as amended. In the case of dispute or ambiguity about the minimum levels of performance by the Contractor the order of precedence of document interpretation is in the same order.

21.2 Entire Agreement. These documents contain the entire agreement of the parties. Any enlargement, alteration or modification requires a written amendment signed by both parties.

22.0 EXECUTION

The parties through their authorized agents have executed this contract on the dates set out below.

STATE OF MONTANA
DEPARTMENT OF ENVIRONMENTAL QUALITY

(INSERT CONTRACTOR'S NAME)
(Insert Address)
(Insert City, State, Zip)
FEDERAL ID # **(Insert Number)**

BY: _____
Richard Oppen, Director

BY: _____
(Name/Title)

DATE: _____

DATE: _____

Approved as to Legal Content:

Approved as to Form:

Legal Counsel (Date)
DEQ

Designated representative (Date)
DEQ

APPENDIX B: STANDARD TERMS AND CONDITIONS

By submitting a response to this request for proposal (RFP), the vendor agrees to acceptance of the following Standard Terms and Conditions and any other provisions that are specific to this RFP or resultant contract.

ACCEPTANCE/REJECTION OF PROPOSALS: The Montana Department of Environmental Quality (DEQ or State) reserves the right to accept or reject any or all proposals, wholly or in part, and to make awards in any manner deemed in the best interest of the State. Proposals will be firm for 30 days, unless stated otherwise in the text of the RFP.

ACCESS AND RETENTION OF RECORDS: The contractor agrees to provide DEQ, Legislative Auditor, or their authorized agents, access to any records necessary to determine contract compliance (§ 18-1-118, MCA). The contractor agrees to create and retain records supporting the services rendered or supplies delivered for a period of three years after either the completion date of the contract or the conclusion of any claim, litigation, or exception relating to the contract taken by the State of Montana or third party.

ALTERATION OF SOLICITATION DOCUMENT: In the event of inconsistencies or contradictions between language contained in the State's RFP and a vendor's response, the language contained in the State's original RFP will prevail. Intentional manipulation and/or alteration of RFP language will result in the vendor's disqualification and possible debarment.

ASSIGNMENT, TRANSFER AND SUBCONTRACTING: The contractor shall not assign, transfer or subcontract any portion of the contract without the express written consent of DEQ. (§ 18-4-141, MCA)

AUTHORITY: The following RFP is issued under authority of Title 18, Montana Code Annotated, and the Administrative Rules of Montana, Title 2, chapter 5.

COMPLIANCE WITH LAWS: The contractor must, in performance of work under the contract, fully comply with all applicable federal, state, or local laws, rules and regulations, including the Montana Human Rights Act, the Civil Rights Act of 1964, the Age Discrimination Act of 1975, the Americans with Disabilities Act of 1990, and Section 504 of the Rehabilitation Act of 1973. Any subletting or subcontracting by the contractor subjects subcontractors to the same provision. In accordance with section 49-3-207, MCA, the contractor agrees that the hiring of persons to perform the contract will be made on the basis of merit and qualifications and there will be no discrimination based upon race, color, religion, creed, political ideas, sex, age, marital status, physical or mental disability, or national origin by the persons performing the contract.

CONFORMANCE WITH CONTRACT: No alteration of the terms, conditions, delivery, price, quality, quantities, or specifications of the contract shall be granted without prior written consent of DEQ. Deliverables submitted to DEQ, which do not conform to the contract terms, conditions, and specifications may be rejected and returned at the contractor's expense.

DEBARMENT: The contractor certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction (contract) by any governmental department or agency. If the contractor cannot certify this statement, attach a written explanation for review by the State.

DISABILITY ACCOMMODATIONS: The State of Montana does not discriminate on the basis of disability in admission to, access to, or operations of its programs, services, or activities. Individuals, who need aids, alternative document formats, or services for effective communications or other disability-related accommodations in the programs and services offered, are invited to make their needs and preferences known to this office. Interested parties should provide as much advance notice as possible.

FACSIMILE or ELECTRONIC RESPONSES: Facsimile or electronic responses will **NOT** be accepted for this RFP. However notifications of any ambiguity, inconsistency, or error in RFP documents and written questions regarding the RFP may be faxed or submitted by Email to the DEQ designated representative for the RFP (See Section 1.2.2).

FAILURE TO HONOR PROPOSAL: If an offeror to whom a contract is awarded refuses to accept the award or, fails to deliver in accordance with the contract terms and conditions, DEQ may, in its discretion, suspend the offeror for a period of time from entering into any contracts with the State of Montana.

FORCE MAJEURE: Neither party shall be responsible for failure to fulfill its obligations due to causes beyond its reasonable control, including without limitation, acts or omissions of government or military authority, acts of God, materials shortages, transportation delays, fires, floods, labor disturbances, riots, wars, terrorist acts, or any other causes, directly or indirectly beyond the reasonable control of the non-performing party, so long as such party is using its best efforts to remedy such failure or delays.

HOLD HARMLESS/INDEMNIFICATION: The contractor agrees to protect, defend, and save the State, its elected and appointed officials, agents, and employees, while acting within the scope of their duties as such, harmless from and against all claims, demands, causes of action of any kind or character, including the cost of defense thereof, arising in favor of the contractor's employees or third parties on account of bodily or personal injuries, death, or damage to property arising out of services performed or omissions of services or in any way resulting from the acts or omissions of the contractor and/or its agents, employees, representatives, assigns, subcontractors, except the sole negligence of the State, under this agreement.

LATE PROPOSALS: Regardless of cause, late proposals will not be accepted and will automatically be disqualified from further consideration. It shall be solely the vendor's risk to assure delivery at the designated office by the designated time. Late proposals will not be opened and may be returned to the vendor at the expense of the vendor or destroyed if requested.

PAYMENT TERM: All payment terms will be computed from the date of receipt of a properly executed invoice. Unless otherwise noted in the RFP, the State is allowed 30 days to pay such invoices. All contractors will be required to provide banking information at the time of contract execution in order to facilitate State electronic funds transfer payments. Payment may be withheld regarding questioned costs and/or pending receipt of deliverables due within the billing period.

RECIPROCAL PREFERENCE: The State of Montana applies a reciprocal preference against a vendor submitting a bid from a state or country that grants a residency preference to its resident businesses. A reciprocal preference is only applied to an invitation for bid for supplies or an invitation for bid for nonconstruction services for public works as defined in section 18-2-401(9), MCA, and then only if federal funds are not involved. For a list of states that grant resident preference, see <http://discoveringmontana.com/doa/gsd/procurement/reciprocalpreference.asp>.

REFERENCE TO CONTRACT: The contract number **MUST** appear on all invoices and correspondence pertaining to the contract.

REGISTRATION WITH THE SECRETARY OF STATE: Any business intending to transact business in Montana must register with the Secretary of State. Businesses that are incorporated in another state or country, but which are conducting activity in Montana, must determine whether they are transacting business in Montana in accordance with sections 35-1-1026 and 35-8-1001, MCA. Such businesses may want to obtain the guidance of their attorney or accountant to determine whether their activity is considered transacting business.

If businesses determine that they are transacting business in Montana, they must register with the Secretary of State and obtain a certificate of authority to demonstrate that they are in good standing in Montana. To obtain

registration materials, call the Office of the Secretary of State at (406) 444-3665, or visit their website at <http://sos.mt.gov/BSB>.

RFP EXAMINATION: Vendors shall promptly notify the State of any ambiguity, inconsistency, or error, which they may discover upon examination of the RFP.

SEPARABILITY CLAUSE: A declaration by any court, or any other binding legal source, that any provision of the RFP or subsequent contract is illegal and void shall not affect the legality and enforceability of any other provision of the contract, unless the provisions are mutually dependent.

TAX EXEMPTION: The State of Montana is exempt from Federal Excise Taxes (#81-0302402).

TECHNOLOGY ACCESS FOR BLIND OR VISUALLY IMPAIRED: Contractor acknowledges that no state funds may be expended for the purchase of information technology equipment and software for use by employees, program participants, or members of the public unless it provides blind or visually impaired individuals with access, including interactive use of the equipment and services, that is equivalent to that provided to individuals who are not blind or visually impaired. (§ 18-5-603, MCA.) Contact the State Procurement Bureau at (406) 444-2575 for more information concerning nonvisual access standards.

TERMINATION OF CONTRACT: Unless otherwise stated, DEQ may, by written notice to the contractor, terminate the contract in whole or in part at any time the contractor fails to perform the contract.

UNAVAILABILITY OF FUNDING: DEQ, at its sole discretion, may terminate or reduce the scope of the contract if available funding is reduced for any reason. (§ 18-4-313 (3) MCA.)

U.S. FUNDS: All prices and payments must be in U.S. dollars.

VENUE: This RFP is governed by the laws of Montana. The parties agree that any litigation concerning this RFP or subsequent contract, must be brought in the First Judicial District in and for the County of Lewis and Clark, State of Montana, and each party shall pay its own costs and attorney fees. (§18-1-401, MCA.)

APPENDIX C: DESCRIPTION OF PROPOSED PROJECT

Genesis Inc.'s Troy Mine is about 15 miles south of Troy, MT (see Figure 1). The ore body is beneath Mount Vernon, approximately 2 miles west of Bull Lake. The Troy Mine permit area is contained within T28N, R33W, Sections 5 and 6; T29N, R33W, Sections 5, 6, and 7; T29N, R34W, Sections 12, 13, 14, 23, 24, 25, 26, 35, and 36; and T30N, R33W, Sections 31 and 32 in Lincoln County. Land ownership within the 2635-acre permit area includes 1135 acres on National Federal System (NFS) lands, which are administered by the Kootenai National Forest (KNF); 404 acres in the 1977 mineral patents on Mt. Vernon, 331 acres owned by timber companies (Plum Creek and Stimson Lumber), and 765 acres owned by Genesis, Inc. (Genesis). The mill site and northern portals are located on NFS lands. The south portal is on patented land and the tailings impoundment lies on Genesis land. Access to the mill site and tailings facility is primarily by private roads and Forest Service road #4626 off State Highway 56. The proposed Troy Mine Revised Reclamation Plan (Revised Reclamation Plan) shows the current disturbed acres as follows:

- Tailings impoundment area – 429 acres
- Plant site – 34 acres
- Mine portals – 15 acres
- Utility corridor – 5 acres
- Roads – 56 acres

The ASARCO, Inc. Troy Mine project was permitted in 1978 by the U.S. Forest Service (USFS) and State of Montana as a 20,000 ton-per-year underground copper/silver mine. The ore was and is mined using the “room-and-pillar method”. The project includes the underground mine, an underground crusher, a flotation mill in the Stanley Creek drainage, tailings and water pipelines to a tailings impoundment in the Lake Creek valley, access roads, a 115-kV transmission line, and a rail concentrate loadout facility in Libby, MT.

ASARCO began full production in 1982 but put the mine on standby mode in 1993 due to depressed metal prices. Production resumed in 2005 under Genesis and is projected to continue at least 5 years until the ore body is depleted. During the shut-down period, ASARCO sold its interest to Sterling Mining Company, which became Revett Silver Company (Revett). The Troy Mine is now permitted and operated by Genesis, a wholly owned subsidiary of Revett. Genesis currently has posted a \$10.5 million reclamation bond for the project. The reclamation bond is being updated to \$12.9 million. A general map of project facilities is shown in Figure 2.

Genesis submitted the Revised Reclamation Plan in October of 2005. This revised plan describes proposed reclamation elements for final closure of the Troy Mine following cessation of mining activities. Over the course of the mine operation knowledge has been gained through many studies, data collection, revegetation test plots, prior reclamation plan development and reviews, and bonding determinations. In addition, some conditions have changed since the 1979 planning and permitting documents were prepared. One is the presence of toe ponds at the perimeter of the tailings facility dikes. Another is the change in State water discharge standards which do not allow direct discharge of produced mine water into Stanley Creek. This Revised Reclamation Plan attempts to combine the results of all of the above.

The Revised Reclamation Plan addresses facility removal for many development and operational features including:

- Roads,
- Waste rock dumps,
- Mine portals,
- Underground facilities,
- Mill and plant site,
- Soil borrow sites,
- Power supply—transmission line, generators, fuel tanks, etc.,
- Water supply and pump facilities,
- Sewage treatment facility,
- Pipelines,
- Tailings impoundment,
- Monitoring wells, and
- Fences.

The Revised Reclamation Plan proposes to pipe the mine water discharge to the tailings decant ponds for direct groundwater discharge. Other water treatment options, including using hydraulic plugs in the mine adits, considered in the application, but were not included in the proposed permit amendment.

The Revised Reclamation Plan also contains reports and plans including:

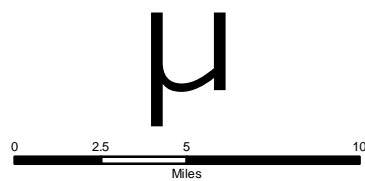
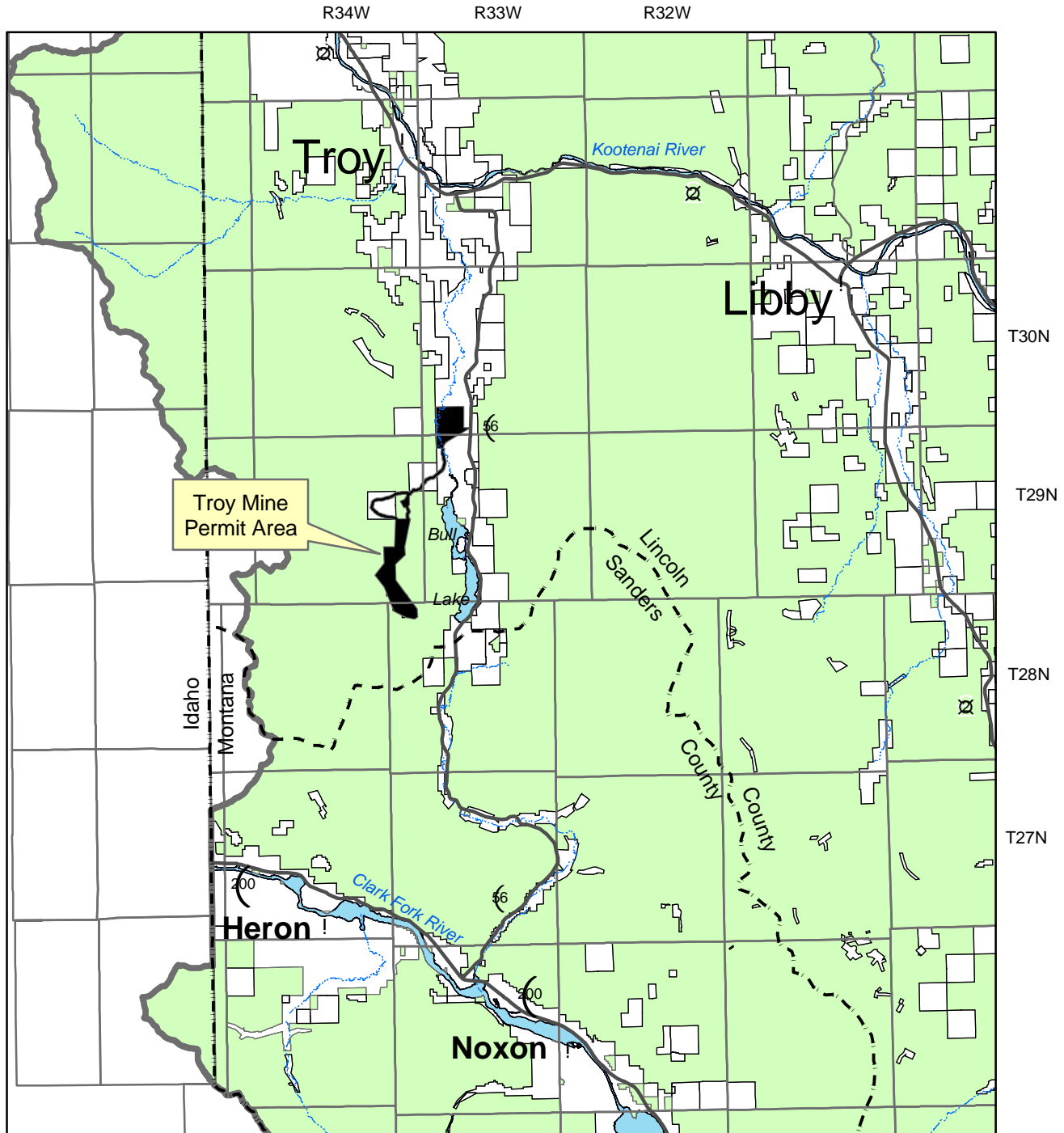
- Mine flooding report,
- Revegetation Status Report,
- Assessment of fate and transport of copper in decant pond disposal system,
- Soil investigation results,
- Weed control plan,
- Water monitoring plan,
- Revegetation plan,
- Geotechnical monitoring plan,
- Tailing facility stability report, and
- Conceptual portal plug study.

In addition, a report is currently in progress studying the cause of two surface subsidence events and potential future subsidence issues.

(For more details on the proposed project refer to the DEQ Web Site – www.deq.state.mt.us/hardrock/current.asp [10/13/2005 - Troy Mine Revised Reclamation Plan])

Figure 1

**Troy Mine Revised Reclamation Plan
Lincoln County, Montana
General Location Map**



Legend

- County Boundaries
- Non-Federal Ownership
- OWNER**
- Federal Ownership
- Troy Mine Permit Area
- Kootenai National Forest Boundary

Figure 2
Troy Mine Revised Reclamation Plan
Troy Mine Permit Area Location Map

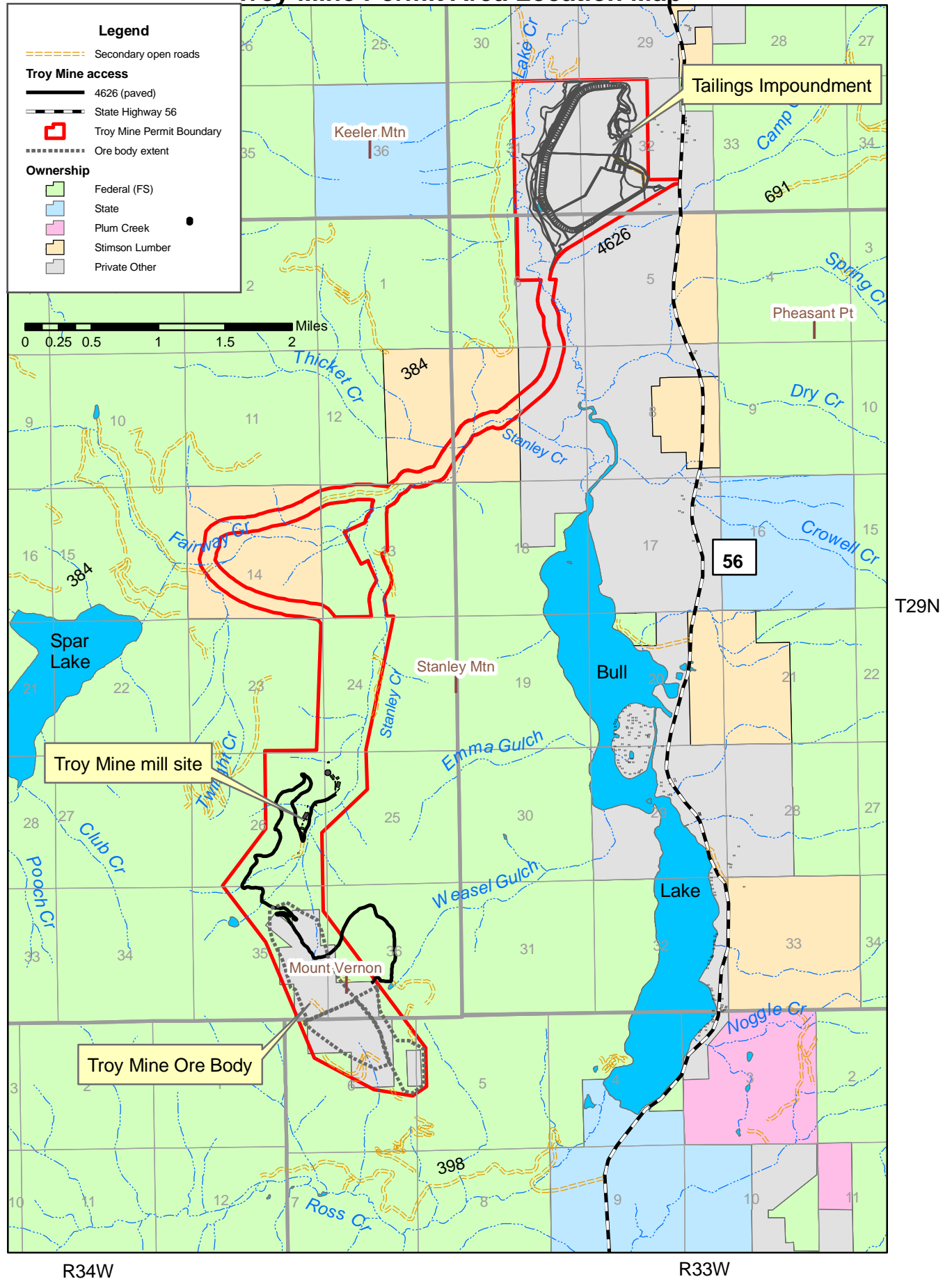


Figure 3

Troy Mine Revised Reclamation Plan Troy Mine and Mill Site Area Map

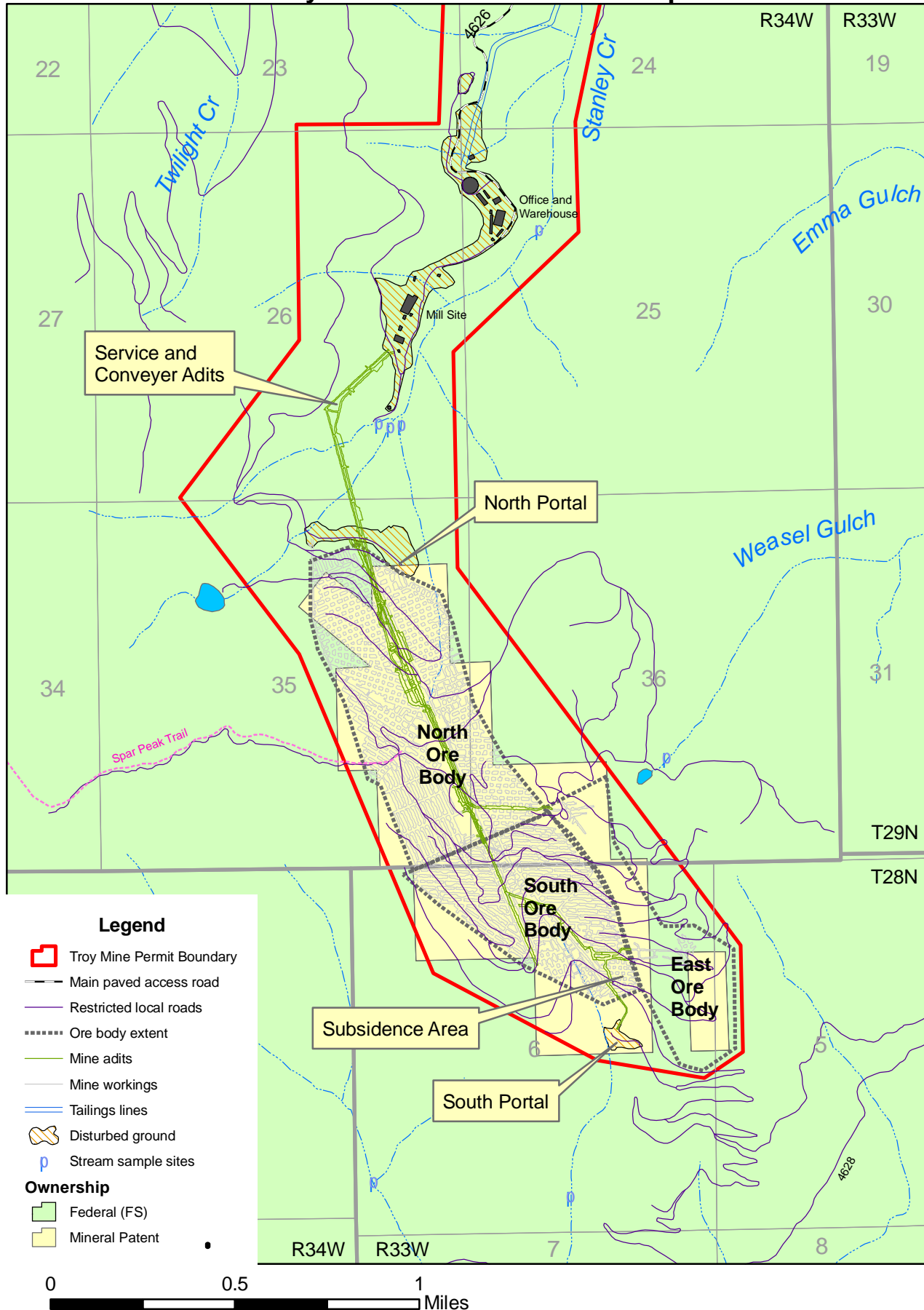
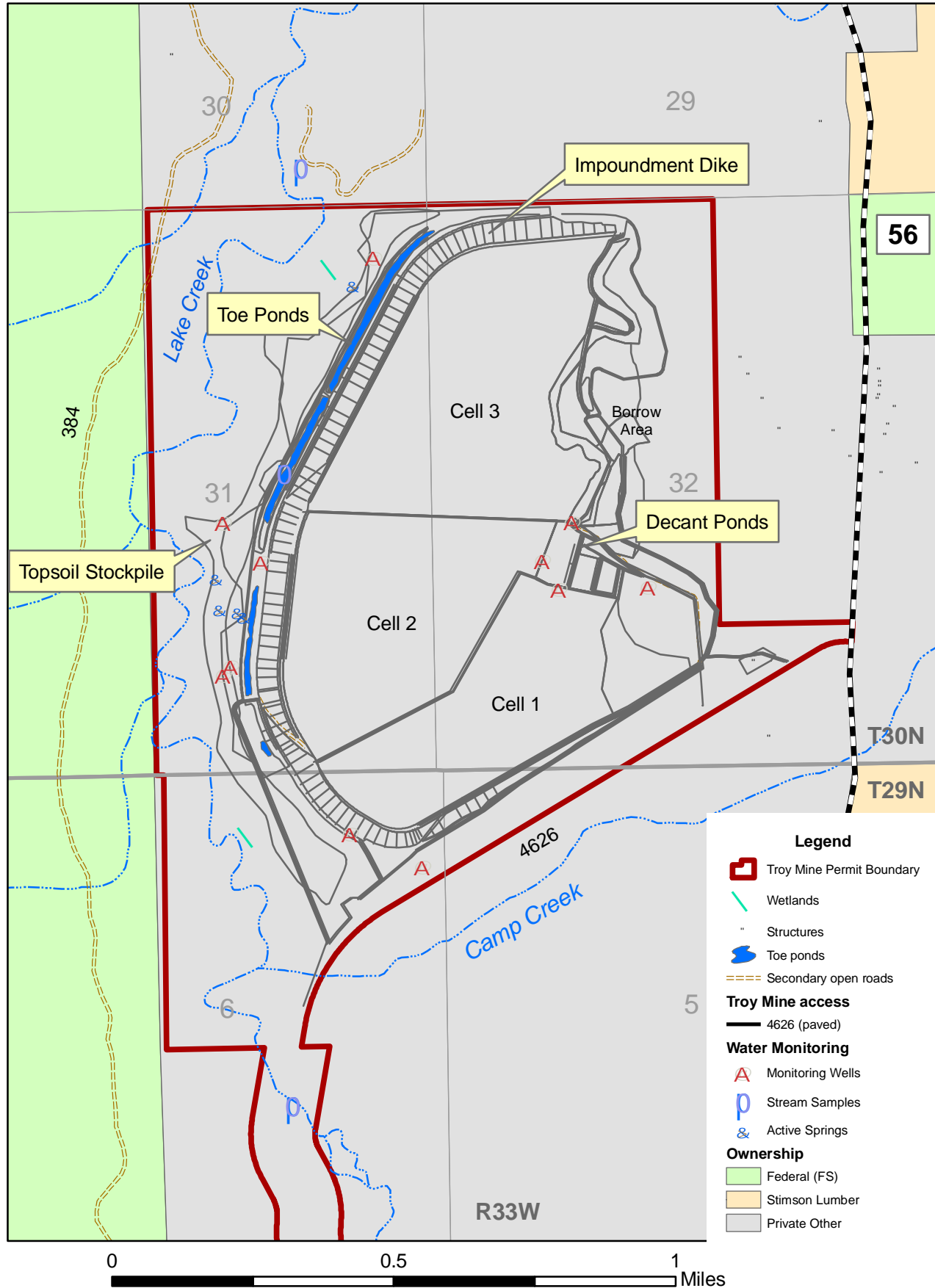


Figure 4

Troy Mine Revised Reclamation Plan Troy Mine Tailings Impoundment Area Map



APPENDIX D: DRAFT EIS STYLE AND FORMAT TEMPLATE



United States
Department of
Agriculture

Forest
Service

Northern
Region



Draft Environmental Impact Statement for the Troy Mine Revised Reclamation Plan

Kootenai National Forest and Montana Department of Environmental Quality

Insert Map for Alternative

Enter descriptive text about this image by:

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Environmental Impact Statement For The Troy Mine Revised Reclamation Plan

Kootenai National Forest
Lincoln County, MT

Lead Agencies: USDA Forest Service and Montana Department of
Environmental Quality

Cooperating Agencies: U.S. Army Corps of Engineers

Responsible Official:	Paul Bradford Kootenai National Forest 1101 Hwy 2 W Libby MT 59923	Richard Opper Montana DEQ PO Box 200901 Helena MT 59620-0901
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For Information Contact:	John Mckay Kootenai National Forest 1101 Hwy 2 W Libby MT 59923 406-283-7525	Kathy Johnson Montana DEQ PO Box 200901 Helena MT 59620-0901 406-444-1760
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Abstract: [Insert 1 paragraph abstract on the environmental impact statement, including the alternatives considered and identification of the preferred alternative(s) if one or more exists and Forest Plan Amendments if needed.]

[FOR DRAFT ONLY]

Reviewers should provide the Forest Service (FS) and Department of Environmental Quality (DEQ) with their comments during the review period of the draft environmental impact statement. This will enable the FS and DEQ to analyze and respond to the comments at one time and to use information acquired in the preparation of the final environmental impact statement, thus avoiding undue delay in the decisionmaking process. Reviewers have an obligation to structure their participation in the National Environmental Policy Act (NEPA) and Montana Environmental Policy Act (MEPA) process so that it is meaningful and alerts the agency to the reviewers' position and contentions. Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553 (1978). Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final environmental impact statement. City of Angoon v. Hodel (9th Circuit, 1986) and Wisconsin Heritages, Inc. v. Harris, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). Comments on the draft environmental impact statement should be specific and should address the adequacy of the statement and the merits of the alternatives discussed (40 CFR 1503.3).

Send Comments to: Name and Title
Address

Date Comments Must Be Received: Date]

Summary

Genesis, Incorporated (Genesis) proposes to [summarize proposal]. The area affected by the proposal includes [briefly describe affected environment]. This action is needed, because [summarize the need for action].

[Describe the background leading up to the proposal, public involvement efforts, and major issues raised, and the permits and/or approvals needed.]

These issues led the agencies to develop alternatives to the proposed action including:

[Briefly describe each alternative.

Major conclusions include:

[Briefly explain or display conclusions as related to impacts.]

Based upon the effects of the alternatives, the responsible officials will decide [insert brief description of decision to be made].

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Chapter 1. Purpose of and Need for Action

Document Structure

The Forest Service (FS) and the Department of Environmental Quality (DEQ) have prepared this Environmental Impact Statement (EIS) in compliance with the National Environmental Policy Act (NEPA), the Montana Environmental Policy Act (MEPA), the Montana Major Facilities Siting Act (MFSA), and other relevant federal and state laws and regulations. This EIS discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four chapters:

- *Chapter 1. Purpose and Need for Action:* The chapter includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the FS and DEQ informed the public of the proposal and how the public responded.
- *Chapter 2. Alternatives, including the Proposed Action:* This chapter provides a more detailed description of Mines Management, Inc.'s (Genesis) proposed action as well as the agencies' alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- *Chapter 3. Affected Environment and Environmental Consequences:* This chapter describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by [insert topic (i.e., resource area, significant issues, environmental component)].
- *Chapter 4. Consultation and Coordination:* This chapter provides a list of preparers and agencies consulted during the development of the environmental impact statement.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental impact statement such as the record index, public comments and responses, etc.
- *Index:* The index provides page numbers by document topic.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project record (PR) located at [\[X\]](#)

This disclaimer pertains to all GIS maps within this document:

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Project Area Description

The Troy Mine Revised Reclamation Plan area is located in [\[insert general project area description and legals where possible for project facilities\]](#).

Background

[Provide the history of events leading up to the project proposal including previous permits and approvals.]

Proposed Action

Genesis proposes to [insert brief description of the proposed action] to meet the purpose and need.

Describe if a Forest Plan Amendment is needed.

Purpose and Need for Action

Kootenai National Forest

There is a need for [insert objectives]. This action is needed, because [insert need for action in that location at this specific time]. This action responds to the goals and objectives outlined in the [X] Forest Plan, and helps move the project area towards desired conditions described in that plan ([insert reference to Forest Plan]). [Describe specific linkages to the Forest Plan if appropriate. Reference any pre-NEPA or “plan-to-project” assessments that identified the need.]

Montana Department of Environmental Quality

[Insert DEQ objective in evaluating the project.]

Genesis Incorporated

[Insert Genesis purpose.]

Agency Roles and Responsibilities

Federal Agencies

Kootenai National Forest

[Insert responsibilities here.]

U.S. Army Corps of Engineers

[Insert responsibilities here.]

U.S. Fish and Wildlife Service

[Insert responsibilities here.]

State or County Agencies

Montana Department of Environmental Quality

[Insert responsibilities here.]

Montana Hard Rock Mining Impact Board

[Insert responsibilities here.]

Lincoln County Weed Board

[Insert responsibilities here.]

Decision Framework

[Insert explanatory verbiage.]

Federal Agencies with Permit or Plan Approval

Kootenai National Forest

Given the purpose and need, the deciding official reviews the proposed action, the other alternatives, and the environmental consequences in order to make the following decisions:

[insert questions that the deciding official must answer when making the final decision].

U.S. Army Corps of Engineers

[Insert verbiage.]

U.S. Fish and Wildlife Service

[Insert verbiage.]

State Agencies with Permit or Plan Approval

Montana Department of Environmental Quality

[Insert verbiage.]

Chapter 2. Alternatives, Including the Proposed Action

This chapter describes and compares the alternatives considered for the Troy Mine Revised Reclamation Plan. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative (i.e., traditional tailings impoundment versus tailings paste facility) and some of the information is based upon the environmental, social and economic effects of implementing each alternative (i.e., relocating a road or facility to reduce potential impacts to surface water quality and thus aquatic life in a stream from erosion and dust).

Public Involvement

The Notice of Intent (NOI) was published in the Federal Register on [\[insert dates\]](#). The NOI asked for public comment on the proposal from [\[insert dates\]](#). In addition, as part of the public involvement process, the agencies [\[insert description of public involvement efforts and reference to documents in PR detailing results\]](#).

Using the comments from the public, other agencies, and [\[insert others such as tribes, depending on the situation\]](#) (see *Issues* section), the interdisciplinary team developed a list of issues to address.

Issues

The FS and DEQ separated the issues into two groups: significant and non-significant issues. Significant issues were defined as a point of debate or dispute about the effects directly or indirectly caused by implementing the proposed action. Non-significant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) implementing regulations (40 CFR 1500 et seq. 2003) for the National Environmental Policy Act (NEPA) explain this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review...". (40 CFR 1501.7 (a)(3), 2003)

Significant, issues were sorted into one of the following subcategories to facilitate issue tracking and response:

- **Key Issues** – Issues used to develop the alternatives and specific activities of the alternatives.
- **Analysis Issues** – Issues addressed in the effects analysis and used to compare alternatives. They are described in detail and analyzed in Chapter 3.

Non-significant issues were addressed as follows to facilitate issue tracking and response.

- **Issues Not Addressed in Detail** – Issues or concerns that were determined to be beyond the scope of the project, or, if addressed, the issue or concern would result in an alternative that does not meet the projects' purpose and need. Issues not addressed in detail are summarized in Chapter 2.

Key Issues

Key issues are specific to the action alternatives and the project area. Indicators for each issue will help to evaluate how each of the proposed alternatives addresses the issue. Indicator evaluations are provided in the “Comparison of Alternatives” section of Chapter 2, and the issues are discussed in detail in the associated resource sections of Chapter 3. Through the issue identification process, the key issues presented in the following subsections were raised.

[Insert Issue #1]: [Describe issue and identify any indicators that can be used to measure whether that issue can be remedied by implementing different alternatives or mitigation measures. Reference where this issue is addressed within the document.]

[Insert Issue #...]: [Describe issue and identify any indicators that can be used to measure whether that issue can be remedied by implementing different alternatives or mitigation measures. Reference where this issue is addressed within the document.]

Analysis Issues

Analysis issues do not result in the development of an alternative or have already been addressed in the proposed action or no action alternatives. Analysis issues are addressed in the effects analysis and are used to compare alternatives. Analysis issues often arise in public scoping from similar comments and concerns voiced by multiple respondents. The rationale for determining the following issues as analysis issues rather than key issues can be found in the PR. These issues are described in detail and analyzed throughout Chapter 3.

[Insert Issue]

Issues Not Addressed In Detail

A list of non-significant issues and reasons regarding their identification as non-significant may be found in the PR.

[Insert Issue]

[Is the relationship between issues and comments received clearly explained? Were issues identified as obtained from the public through scoping versus internal FS issues? Is the rationale for selecting the issues for detailed review clearly disclosed? Is it appropriately documented why some issues were considered non-significant and eliminated from detailed study?]

Other Related Efforts

The Kootenai National Forest is in the process of revising their 1987 Kootenai Forest Plan (KFP). The Plan is being revised under the 2005 Planning Rule and a Draft Plan was released in April of 2006. A final Kootenai Land Management Plan (KLMP) is expected in November of 2006, followed by the release of the Plan Approval Document. Direction found in the KFP, as amended, will be adhered to until the new Plan is approved.

Alternatives Considered in Detail

The FS and DEQ developed [X] alternatives, including the No Action and the Proposed Action alternatives, in response to issues raised by the public.

[Is it documented how the key and analysis issues were used to formulate alternatives, develop design criteria, prescribe mitigation measures and analyze environmental effects? Are comments received reflected in the range of alternatives or project design?]

Alternative 1 - No Action

Under the No Action alternative, current management plans would continue to guide management of the project area. No [insert project activities] would be implemented to accomplish project goals.

Insert Map for Alternative 1
Enter descriptive text about this image by:

Right Click on Image
Select Format Object
Select Web tab

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Figure 1. Insert Figure Title

Alternative 2 - The Proposed Action

[Describe the Proposed Action including mitigation—should be the same action proposed in the NOI]

Insert Map for Alternative 2

Enter descriptive text about this image by:

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Select Format Object

Select Web tab

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Delete this box before inserting image. Click on this box, then press the delete key.

Figure 2. Insert Figure Title

Alternative 3 -....

[Describe the alternative including mitigation.]

Insert Map for Alternative 3

Enter descriptive text about this image by:

Right Click on Image

Select Format Object

Select Web tab

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Delete this box before inserting image. Click on this box, then press the delete key.

Figure 3. Insert Figure Title

Mitigation and Monitoring Measures Common to All Action Alternatives

The FS and DEQ also developed the following mitigation measures to be used as part of all of the action alternatives.

[Use table to display mitigation and monitoring measures sorted alphabetically by resource. Be sure to identify areas of responsibility (who will collect information, how often, and to whom will it be given, and how often reported to the public).]

Alternatives Considered but Eliminated from Detailed Study

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Likewise state agencies are required to investigate an alternative approach or course of action that would appreciably accomplish the same objectives or results as the Proposed Action. However, DEQ is required to consider only alternatives that are realistic, technologically available, and that represent a course of action that bears a logical relationship to the proposal being evaluated (ARM 17.4.603(2)(b)). Public comments received in response to the Proposed Action provided suggestions for alternative methods for achieving the purpose and need. Some of these alternatives may have been outside the scope of [insert need], duplicative of the alternatives considered in detail, or determined to be components that would cause unnecessary environmental harm. Therefore, a number of alternatives were considered, but dismissed from detailed consideration for reasons summarized below [Edit text specifically for the circumstances of this project].

[Describe alternatives considered but eliminated from detailed study.]

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table [X]. Insert Table Title

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
[Item to Compare 1]				
[Item to Compare 2]				
[Item to Compare 3]				
[Item to Compare 4]				

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
[Item to Compare 5]				
[Item to Compare 6]				

Chapter 3. Affected Environment and Environmental Consequences

This Chapter summarizes the physical, biological, social, and economic environments of the project area and the effects of implementing each alternative on that environment. It also presents the scientific and analytical basis for the comparison of alternatives presented in the alternatives chapter.

Past and Current Actions

[Catalogue of past and or current actions, include explanation of what happened and the effects that are still ongoing ie Those projects done prior to [X] date have this effect ... (use cumulative effects worksheet and bridge gap of how this list was uses in specific resource cumulative effects.)]

Reasonably Foreseeable Future Actions

Federal agencies are required by NEPA to rigorously explore and objectively evaluate the proposed project and alternatives with reasonably foreseeable future actions to determine what cumulative effects if any would result. (40 CFR 1508.7). Under MEPA “related future actions must also be considered when these actions are under concurrent consideration by any state agency through preimpact statement studies, separate impact statement evaluation, or permit processing procedures” (ARM 17.4.602(7)).

[Describe reasonably foreseeable future actions in the vicinity of the proposed project.]

Air Quality

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Climate

Particulates and Gaseous Pollutants

[Add verbiage.]

Visibility

[Add verbiage.]

Environmental Consequences

Particulates and Gaseous Pollutants

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Visibility

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

American Indian

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Treaty Rights

[Insert verbiage]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition. (areas of traditional/cultural concern),]

Historic Tribal Distributions

[Insert verbiage]

Consultation with Interested Tribes

[Insert verbiage]

Environmental Consequences

Impacts on Treaty rights and Traditional/Cultural Uses by Resource

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Cultural Resources

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Cultural Resource Surveys

[Add verbiage.]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Fisheries/Aquatics

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.
Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Habitat Characteristics

Chemical Characteristics

Aquatic Plants and Periphyton

Aquatic Insects

Fish Population Status

Spawning Surveys

Heavy Metal Concentrations in Fish Tissue

Historical Impacts to Fisheries

Threatened and Endangered Species

Sensitive Species

Watershed Conditions

Environmental Consequences

Sediment

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Short Term Uses and Long Term Productivity

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Short Term Uses and Long Term Productivity

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occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Water Quantity

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Water Quality - Nutrients

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Water Quality - Metals

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Toxic Metals in Fish

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Fish Passage and Unmitigated Losses

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

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[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Threatened, Endangered, and Sensitive Species

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally

occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Table [X]. Comparison of Fisheries/Aquatics Environmental Consequences by Alternative

	Alternative 1	Alternative 2	Alternative 3
Sediment			
Water Quantity			
Water Qaulity Nutrients			
Qater Quality Metals			
Toxic Metals in Fish			
Fish Passage and Unmitigated Losses			
Threatened, Endangered, and Sensitive Species			

Geology

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Geologic Setting

[Includes Regional Physiography, Regional Geology, Geology of Project Area]

Mining History

Topography and Geomorphology

Acid Base Potential

Environmental Consequences

Topography and Geomorphology

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Mineral Resources

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Table [X]. Comparison of Geological Environmental Consequences by Alternative

	Alternative 1	Alternative 2	Alternative 3
Topography and Geomorphology			
Mineral Resources			

Geotechnical Engineering

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, existing condition, reference conditions]

Geologic Hazards

[Description of geologic hazards such as landslides, slope stability, and avalanches etc.]

Environmental Consequences

Subsidence

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Impoundment Stability

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Stability of Other Facilities

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Table [X]. Comparison of Geotechnical Engineering Environmental Consequences by Alternative

	Alternative 1	Alternative 2	Alternative 3
Subsidence			
Impoundment Stability			
Stability of Other Facilities			

Hydrology

[Brief description of the resource being analyzed, or overview of the analysis process.]

Surface Water Hydrology

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional). Include WQLs and 303 (d) discussion.]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, existing condition, reference conditions]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Surface Water Quality

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional). Include WQLs and 303 (d) discussion.]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, existing condition, reference conditions (lakes springs, streams and acid rock drainage)]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Water rights

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional)]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, existing condition, reference conditions (lakes springs, streams and acid rock drainage)]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Ground Water Hydrology

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional)]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

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[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, existing condition, reference conditions (lakes springs, streams and acid rock drainage)]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Ground Water Quality

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional)]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, existing condition, reference conditions (lakes springs, streams and acid rock drainage)]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally

occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Land Use

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and

any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Private Lands

KNF Land Management

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Recreation

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Developed Recreation

Dispersed Recreation

Trails

Motorized and Non-motorized Access

[Discuss travel management planning (roads, trails, motorized recreation RAPS)]

Recreation Special Uses

Inventories Roadless Areas

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Scenery

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model]

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition, Scenic Integrity Objectives.]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Social/Economics

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model]

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An

irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Soils

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.(soil types and suitability for reclamation)]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage (soil loss and characteristics).]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage (soil loss and characteristics).]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage (soil loss and characteristics).]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Sound

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Transportation

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Vegetation (Botany, Old Growth, Vegetation, Weeds)

[Brief description of the resource being analyzed, or overview of the analysis process.]

Vegetation Communities (Native Revegetation)

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Old Growth Ecosystems

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Species of Special Concern (Sensitive Plants)

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

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[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Threatened, Endangered and Candidate Species

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Short Term Uses and Long Term Productivity

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Noxious Weeds

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An

irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

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[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Wetlands

[Brief description of the resource being analyzed, or overview of the analysis process.]

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

[Time period covered by the effects analysis, type of data which is used in the effects analysis, explain why the data is appropriate, the date or age of the data (if the data is older than five years, explain why it is still valid) methodologies, indicate what models were used in the analysis, and any limitations or assumptions of the model.

Describe the measurement indicators, why it is a good indicator (often used to measure effects in relation to a major issue).]

[Geographic scope, description of direct, indirect, cumulative effects bounds, explain how analysis area was determined or why it is appropriate for the effects analysis]

Affected Environment

[Historical condition, Existing condition.]

Environmental Consequences

Alternative 1

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 2

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

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irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Alternative 3

Direct and Indirect Effects

[Add verbiage.]

Cumulative Effects

[Use cumulative effects worksheet, describe how the catalog of past and current actions was used (if any) to describe the cumulative effects.]

Regulatory Consistency

[Federal, State, FS (Forest Plan, Regional) Describe any potential conflicts with plans and policies of other jurisdictions.]

Irreversible and Irretrievable Commitment

[An irreversible commitment of resources refers to the loss of production or use of a non-renewable resource due to a land use decision, that once executed cannot be changed. An irretrievable commitment of resources applies to losses of production or use of renewable resources for a period of time.]

Short Term Uses and Long Term Productivity

[Include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity. Short-term uses are those that generally occur annually. Long-term productivity refers to the ability of the land to produce a continuous supply of a resource..]

Adverse Environmental Effects Which Cannot be Avoided

[Add verbiage.]

Mitigation Measures

[Discuss any measures used to mitigate adverse environmental impacts. Describe the effectiveness of mitigations. The action alternatives as described in Chapter 2 should include all mitigations you are analyzing in Chapter 3.]

Wildlife (Terrestrial)

The Kootenai National Forest provides habitat for over 300 different species of wildlife (KIPZ Analysis of the Management Situation, USDA Forest Service 2003b: 49, 59-64), many of which occur on the [X] Ranger District and within the [X] Analysis Area. The presence or absence of these wildlife species depends on the amount, distribution, and quality of each animal's preferred habitat. In addition to habitat changes, many of these animals are impacted by hunting or trapping. Montana Department of Fish, Wildlife and Parks (MFWP) regulates game animal populations. The Forest Service and the MFWP work together to ensure that an appropriate balance is maintained between habitat capability and population numbers. The Forest Service also works closely with the U.S. Fish and Wildlife Service (FWS) to assist in the recovery of animals listed under the Endangered Species Act (ESA). Proposed federal projects which have the potential to impact species protected by the ESA require consultation with the USFWS.

For the purpose of this Environmental Impact Statement/ Assessment, a number of wildlife species were selected for detailed analysis. The species chosen represent a combination of fine filter (species specific) and coarse filter (management indicator species) analyses. The U.S. Fish and Wildlife Service requires that endangered, threatened, and proposed species be included in an effects analysis. The Regional Forester designates sensitive species. Any effects to sensitive species present or potentially present in a project area must be disclosed. Management Indicator species (MIS) are identified in the Kootenai Forest Plan (KFP) (1987, Appendix 12,) and represent a particular habitat or habitat complex. Each MIS represents a group of species that share common habitat components required for sustained growth and successful reproduction. Other species that would not be affected by any of the alternatives are reviewed, but not discussed in detail. The wildlife portion of this chapter is divided into five sections: old growth, MIS, sensitive, threatened and endangered, and neo-tropical migratory birds.

The bounds of analysis for each species were determined using the viability analysis concepts described by Ruggiero et al. (1994). Species viability is tiered to the forest-wide conservation plan (Johnson 2004).

The wildlife analyses include the baseline conditions (created by all past management practices and natural events); direct, indirect and cumulative effects of the proposed actions; and cumulative effects of reasonably foreseeable projects (List projects by name for this last category).

Old Growth Habitat

Regulatory Framework

[Federal, State, FS (Forest Plan, Regional).]

Methods and Analysis Area

Management and characteristics of old growth and stand attributes necessary for a stand to be considered old growth are discussed and summarized in the KFP (Appendix 17, FP II-1, 7, 22, FP III-54), Green et al. (1992), Pfister et al. (2000), Kootenai Supplement No. 85 to FSM 2432.22 (1991), and Castenada (2004). That information is incorporated by reference. Data sources to identify old growth stands include District files and surveys and the KNF old growth GIS layer. For the timber compartments (#[X]) found in the [X] Planning Sub-unit (PSU) field verification of old growth stands was completed using [X].

The KNF Plan identified the pileated woodpecker as the management indicator species for old growth habitat (KNF FP, Vol. II, Appendix 12-1). For effects to old growth associate wildlife species, refer to the pileated woodpecker analysis in the Management Indicator Species (MIS) section of this document.

Criteria used to compare the alternative impacts on old growth include:

1. Acres of vertical structure removed. These are the acres of direct harvest in designated old growth. This includes both effective (OG) and replacement (ROG) old growth.
2. Acres of harvest in undesignated effective old growth (OG).
3. Road length built adjacent or through designated old growth (in feet).
4. Number of proposed units adjacent to old growth
5. Acres of edge effect in old growth
6. Acres of interior habitat remaining in old growth
7. Acres of additional old growth designated.
8. Acres treated to maintain old growth characteristics or trend toward old growth
9. Percent of designated old growth (OG/ROG) in the planning sub-unit.

Note: criteria #9 must always be used. Include the other criteria when appropriate for proposed project.

Current edge effects were determined by buffering existing regeneration harvest units (TSMRS activity codes 4100-4134) that are less than 30 years old (this is the default age in the model – based on planning unit site specific information you would use age between 20-50 years) old and bordering old growth stands by 300 feet (three tree heights- Russell et al. 2000: 134; Harris 1984: 110-111; Morrison et al. 1992: 84; Province of BC 1995: App. 1, and Ripple et al. 1991: 79). On the Kootenai the average old growth tree height across old growth types is 100 feet (KNF TSMRS). Effects of Alternatives were determined by using the same buffer on proposed regeneration units that border old growth stands.

The analysis boundary for project impacts is the [X] sub-unit, while cumulative effects to old growth are analyzed at the Forest level.

Affected Environment

Existing conditions are a result of historical timber harvest and wildfires. Timber harvest and fire history are discussed in the [X] NFMA assessment (USDA KNF 2003), and the vegetation section of this environmental document. Old growth surveys within the [X] Planning Subunit have

inventoried approximately [X] acres. Of those acres initially thought to be old growth, [X] acres were determined to not be old growth. This leaves approximately [X] acres of inventoried old growth (OG) or replacement old growth (ROG) in the [X] sub-unit. Of these acres, approximately [X] acres are located below 5,500 feet in elevation. See Figure [X], for location of old growth stands within the subunit. Table [X] summarizes the designated and undesignated status of the OG and ROG acres in the [X] PSU and the Kootenai Forest-wide situation.

Replacement old growth stands have many old growth characteristics, but not enough to be considered old growth currently. These stands are expected to become old growth in time.

Table [X] also shows the minimum acres required to be designated to meet KFP standards. Designated old growth stands in the project area support the habitat conditions described in “Old Growth Forest Types of the Northern Region” (Green et al. 1992).

The [X] PSU contains [X] acres below 5,500 feet ([X] acres NFS lands and [X] acres private land). Old growth stands on Corporate timber land and State lands have been harvested, and the [X] acres of old growth remaining on NFS lands below 5,500 feet is about [X] percent of all lands below 5,500 feet in the [X] PSU. The present allocations (see Table [X]) in the [X] PSU meet direction as clarified in FSM 2432.22.

Old growth stands in the analysis area are mainly composed of old larch, ponderosa pine and Douglas fir, and other conifers. Old growth management area designations in the subunit were made to conserve the best old growth attributes available and to provide the best distribution, size, habitat type coverage, and quality of what is available. These old growth stands are physically connected to other old growth stands where possible, or are interconnected to adjacent old growth stands by stands composed of 100+ year old age classes.

Table [X]. Old Growth Acres Under 5,500 Feet Elevation NFS Lands [X] Planning Subunit and Forest-wide

Status	[X] Planning Subunit Acres (Percent)	Kootenai National Forest Acres (Percent)
Total NFS lands	[X]	
Total NFS lands below 5,500 feet elevation	[X]	1,869,953
Minimum acre designation required by KFP	[X]	186,995 (10)
Designated OG (MA 13, or og MA)		
Designated effective OG	[X] ([X])	127,615 (6.8)
Designated ROG	[X] ([X])	57,379 (3.1)
Designated unknown (KFP)	[X] ([X])	20,789 (1.1)
Total designated OG and ROG	[X] ([X])	205,783 (11)
Undesignated Effective OG AND ROG		
Undesignated effective OG	[X] ([X])	68,530 (3.7)
Undesignated ROG	[X] ([X])	38,418 (2)
Totals For Both Designated And Undesignated OG AND ROG		
Total designated and undesignated effective OG	[X]. ([X])	196,538 (10.5)

Status	[X] Planning Subunit Acres (Percent)	Kootenai National Forest Acres (Percent)
Total designated and undesignated ROG	[X] ([X])	95,797 (5)
All old growth acres below 5,500 feet	[X] ([X])	292,335 (15.6)

Acres were updated in January 2005 for the [X] subunit. Forest-wide acres as of July 10, 2003

[X] Replacement old growth stands were designated to provide old growth in the future within the subunit

Block Size

There are a total of [X] acres designated for old growth management. These acres are in [X] blocks ranging from [X] to [X] acres in size. Of these designated old growth blocks, [X] percent are greater than 50 acres in size.

When undesignated OG and ROG stands are considered in conjunction with designated stands, there are a total of [X] acres in block size ranging from [X] to [X] acres. Of these [X] blocks, [X] percent are greater than 50 acres in size. The larger blocks provide interior habitat and connectivity within the areas of National Forest lands.

Stands smaller than 50 acres in size were designated to protect additional attributes unique to old growth where they exist in the subunit. They were designated based on recommendations in Morrison et al. (1992:85), where they state “it is vital to recognize that in heavily fragmented landscapes, the last remaining patches of older or forested vegetation may play an important role. The patches may act as stepping stones for dispersal of many species associated with the specific environmental conditions throughout the landscape. Removal of such patches because they fail to meet criteria for size and provision of interior conditions may result in a network of dispersal for wildlife being severed in the landscape.” These stands are largely surrounded by multi-aged stands, which provide corridor links to larger blocks of old growth.

Distribution

Table [X] shows the distribution of old growth (below 5,500 feet elevation) by VRU. Old growth is well distributed across the vegetation types.

Table [X]. Old Growth (Under 5,500' Elevation) Distribution by VRU on NFS Lands in the [X] PSU

VRU	HRV % OG 1	VRU Acres (%) NFS Lands	Designated OG Acres (%)	Undesignated Old Growth Acres (%)	Total OG (Undesignated and Designated) Acres (%)
1	40-70	[X] ([X])			
2	20-50	[X] ([X])			
3	15-40	[X] ([X])			

VRU	HRV % OG ¹	VRU Acres (%) NFS Lands	Designated OG Acres (%)	Undesignated Old Growth Acres (%)	Total OG (Undesignated and Designated) Acres (%)
4	10-40	[X] ([X])			
5	25-55	[X] ([X])			
6	35-65	[X] ([X])			
7	15-45	[X] ([X])			
8	35-65	[X] ([X])			
9	5-10	[X] ([X])			
10	40-60	[X] ([X])			
11	40-60	[X] ([X])			

¹ USDA Forest Service 1999: stands > 150 years old

These designated old growth stands represent the best distribution of old growth habitat that remains in the subunit (following KFP direction), recognizing that these areas and their boundaries may change due to natural events such as windstorms, epidemic insect infestations, and stand replacement fires.

Stand Structure

Old growth stand structure is described by Green et al. (1992, errata corrected 2004). That information is incorporated by reference. In summary Green identifies three structural stages that are useful in describing old growth. They are late seral single story (e.g ponderosa pine, Douglas-Fir, lodgepole sites); late seral multi-story (e.g. larch, whitepine) and near climax (e.g. cedar, grand fir, sub-alpine fir sites). Stands identified as old growth contain one of these structure stages described by Green.

Disturbance

Within existing designated old growth there are a total of [X] miles of local roads. Of this, [X] miles are restricted seasonally, [X] miles are restricted yearlong, [X] miles of roads have prohibited use, [X] miles are open year-round; and there are [X] miles of motorized trail. These roads and trails either bisect or are adjacent to old growth stands. Roads allow for potential access by firewood cutters to remove standing snags. There are [X] old growth stands adjacent to [X] existing regeneration units (stands less than 30 years old). These units create an edge influence on about [X] acres of old growth.

Environmental Consequences

Table [X] displays a comparison of effects to old growth habitat by alternative. These criteria are discussed under each alternative.

Table [X]. Summary of Measurement Criteria to Evaluate Effects to Old Growth

Measurement Criteria	Existing Condition	Alternatives			
		[X]	[X]	[X]	[X]
Acres of vertical structure removed in designated OG/ROG	--	0			
Acres of vertical structure removed in undesignated OG	--	0			
Road length (in feet) existing or built adjacent/through designated OG/ROG		[X] ([X])	[X] ([X])	[X] ([X])	[X] ([X])
Number of existing or proposed units adjacent to old growth		[X]			
Acres of edge influence in old growth		[X]			
Acres of interior habitat remaining in old growth		[X]			
Acres of additional old growth designated	--	0			
Acres treated to maintain OG or trend stand toward OG	--	0			
Percent of designated old growth in Sub-Unit (OG+ROG)		[X]			

([X]) number in parenthesis is the change in road length due to the alternative

Note: only include those criteria identified in the introduction specific to this project. Last one is always required.

Management activities, such as timber harvest, road construction, or mining, have the potential to impact the function of old growth habitat or specific components of old growth, such as interior habitat and vertical structure. Activities may also allow noxious weed invasion.

Timber harvesting can affect adjacent old growth stands by altering six microclimatic factors (solar radiation, soil temperature and moisture, air temperature, relative humidity and wind speed (Chen et al. 1995). Microclimatic changes lead to vegetative changes (e.g. species richness, diversity, structure, composition) (Russell and Jones 2001). Changes in vegetative conditions may lead to effects such as changes in wildlife species using the area; species abundance and higher predation (Askins 2000: 120) (see pileated woodpecker analysis). All these effects extend varying distances into the uncut stands depending on a number of variables (e.g. aspect, slope, elevation, wind speed and direction, etc.). While there is no single answer to how wide the area influenced by edge is (Chen et al. 1995), research (Harris 1984; Russell et al. 2000; Morrison et al. 1992; Ripple et al. 1991; Province of BC 1995) has identified a three-tree height rule of thumb as the distance effects occur. Table [X] above displays the acres of old growth influenced by edge effects. The depth of influence is also related to time since harvest, with effects dissipating within 20 to 50 years, depending on the factor (Russell and Jones 2001; Ripple et al. 1991, Russel et al. 2000). In the [X] PSU, average tree growth in regeneration units result in tree heights (20-50 feet)

and densities (fully stocked stands) that reduce the depth of influence from edge effects after 30 (insert average age used in model for your planning sub-unit) years.

While changes in vegetation and wildlife use may occur on the acres influenced by edge, those acres remain functional old growth for some species.

The old growth acres not impacted by edge effects provide interior habitat.

Alternative 1 (No Action)

Direct, Indirect, And Cumulative Effects

This alternative would have no direct effect on designated old growth or associated plant and wildlife species (also see pileated woodpecker discussion). The conditions for all 9 measurement criteria (see Table [X]) would remain unchanged. No old growth would be treated through timber harvest or prescribed burning. There would be no risks from these activities, such as soil compaction, weed introduction, or modification of stand structure. All old growth areas would maintain their existing conditions, and continue to provide habitat for those species which utilize the area over a long term.

Existing conditions include the effects of edge from adjacent regeneration units, and roads opened for firewood cutting during previous years. Roads opened for firewood cutting may result in some continuing level of snag removal from the old growth stands. See Table [X] (above) for acres impacted.

Fire suppression over the last century has altered stands historically maintained by fire disturbance. The affected stands have developed fuel loading and ladder fuels that are uncharacteristic for some sites. These conditions would continue to accrue until a natural disturbance occurs.

Potential natural disturbances (wildfire, insect or disease epidemics, wind) could reduce old growth characteristics or completely remove an area of old growth under extreme conditions. While these events might occur, extreme conditions are not predictable so it cannot be said, with reasonable certainty, whether or not these events would have more or less effect than the action alternatives.

The most recent forest-wide old growth analysis concludes that at least 10 percent of the KNF below 5,500 feet elevation is designated for old growth management. This alternative would not affect the 10 percent standard for old growth at either the sub-unit or Forest scale.

Effects of the Action Alternatives [X], [X], [X]

Direct and Indirect Effects

Treatments are/are not proposed in designated effective old growth in Alternative(s) [X], [X]. All treatments are designed to maintain current old growth attributes. Management activities (harvest, prescribed fire) are proposed in [X] acres of effective old growth. The purpose of these activities is to [X]. The outcome would be the maintenance of all old growth structure and function in the treated areas.

Treatments **are/are not** proposed in designated replacement old growth. Activities are designed to improve or preserve attributes that could develop additional old growth characteristics in the near future, as well as maintain the existing old growth attributes in the treatment areas. Alternatives [X], [X] propose [X] acres of **harvest/prescribed fire** in designated replacement old growth. Presently these stands lack enough large trees to be designated as effective old growth. Treatments would increase growth and vigor in the younger age classes, which would enhance growth into the larger tree diameters.

Undesignated effective old growth **would/would not** be impacted by proposed management activities from Alternatives [X], [X]. **(insert details)**

Alternative [X] would reduce the amount of undesignated replacement old growth available by approximately [X] acres, and **alternatives [X]** would reduce the amount of undesignated replacement old growth by [X] acres. The remnant **undesignated replacement** stands would not be retained as **undesignated replacement** old growth due to the small size of the stand remaining. Under Alternatives [X] a shelterwood timber harvest is proposed (unit [X]), with **a portion in an undesignated replacement** old growth stand. Post treatment the stand would not be available as a future candidate for old growth designation due to the loss of old growth attributes during treatment. **Alternatives [X] propose unit M2** which would harvest approximately [X] acres of an **undesignated replacement** old growth stand. Impacts of **M2** would be **the same as or similar to Unit U**. Alternative [X] harvests approximately [X] acres **more/fewer undesignated old growth than alternatives [X]**.

All alternatives propose treatments adjacent to designated and/or undesignated old growth (a portion of the proposed unit is adjacent to one or more edges of the old growth stand) (see Table, above). All action alternatives propose **[X] improvement harvest units ([X])**. Unit [X] is adjacent to an **undesignated replacement** stand, **just outside the boundary of the subunit**. The objective of unit [X] is to restore ponderosa pine and historical stand density. This treatment should trend this stand toward old growth. These drier open stands are not expected to increase any edge effect in the existing dry ponderosa pine/Douglas-fir MA 13. Seed tree harvest adjacent to just one edge of the old growth stands would subject the edge to drying and invasion by early successional plant species (Morrison et al. 1992).

No new roads or temporary roads would be constructed through old growth stands in Alt. [X] or any other alternative. In **Alternatives [X]**, a portion of the road construction of road [X] is adjacent to a designated effective old growth stand. Some increase in edge effect or impact on snags is likely due to the road construction. **Alternative [X] does not build road [X]**. Or Approximately [X] miles of new **(temporary)** road construction would occur in **[X] (insert type)** old growth and would remove about [X] acres. The road **would/would not** be closed to the public **during and after** project use. **If road open to public add:** Public use on these road miles may result in the loss of dead tree structure (snags and down wood) on about [X] acres of old growth. However, the project requires these old growth areas to be signed “Old Growth Forest managed for its unique natural value. Do not cut or remove wood from behind this sign.” Signs are placed strategically along the open road segments as they pass through the old growth.

Portions of roads to be opened (road # [X]) for timber harvest under **alternatives [X]** run through effective and replacement old growth. These stands would have an increased risk for indirect removal of large diameter snags due to firewood gathering when the roads are open for management activities. **Alternative [X]** would open roads [X], therefore opening less roads for

timber harvest and putting fewer old growth stands at risk from firewood cutting (see Table [X], above).

Proposed pre-commercial thinning on approximately [X] acres would occur in existing regeneration units, which would have no direct, indirect, or cumulative effect on old growth. Roads opened for thinning would not be opened to the public so incidental removal of snags for firewood cutting should not result.

No prescribed fire is proposed in any designated or undesignated old growth stand within the [X] planning subunit. Or – disclose effect of prescribed fire in OG – see Forest-wide Fuels

For example, ground disturbing activities in or adjacent to old growth may result in noxious weed invasion. The project design includes measures to reduce this potential risk (e.g. washing equipment).

Cumulative Effects Of The Action Alternatives

The [X] acres of undesignated effective old growth would be changed to designated effective old growth. This results in an increase in designated effective old growth acres under 5,500 feet in elevation to [X] acres, or [X] percent. Cumulatively, the proposed activities (timber harvest, road construction, prescribed fire) in undesignated and designated old growth would not reduce the amount and distribution of old growth below KFP requirements. However, due to cumulative edge effects (see Table [X], above) there may be reduced old growth quality for some plant and animal species. Private lands in the [X] PSU were assumed to not provide any old growth, based on past harvest practices.

The action alternatives, in combination with other proposed and reasonably foreseeable Forest Service, State and private activities (see [X]) would maintain the designated management level of old growth.

Regulatory Consistency

All alternatives are consistent with KFP direction to maintain a minimum of 10 percent old growth below 5,500 feet in elevation in each third order drainage or compartment, or a combination of compartments (Kootenai Supplement No 85., supplement to FSM 2432.22).

Based on April 26th, 2004 direction (Castenada 2004), old growth will be analyzed on the planning subunit scale. After implementation of the action alternatives, the [X] PSU would have [X] percent designated old growth below 5,500 feet elevation. In addition, [X] acres of undesignated replacement old growth would remain. The current Forest-wide assessment (USDA Forest Service 2003) shows that the Kootenai National Forest has [X] percent old growth designated. The KFP established that maintaining 10 percent of old growth habitat is sufficient to support viable populations of old-growth dependent species (Vol. 1, II-1, 7, III-54; Vol. 2, A17).

MA 13 Recreation Standards: All alternatives comply with these standards. A forest closure order exists to off-highway vehicles which restricts them to established roads and trails.

MA 13 Wildlife and Fish Standards: All alternatives comply with these standards

MA 13 Range Standards: All alternatives comply. No active range allotments occur.

MA 13 Timber standards: All alternatives comply with standards 1 and 3. . Firewood cutting could impact snags located in old growth habitat, and this effect is taken into consideration in the cavity habitat analysis.

MA 13 Facilities standards: All alternatives comply with standards 2 and 3. All alternatives would continue to restrict motorized access on local roads where closures exist.

MA 13 Fire Standards: Planned ignitions. The proposed slashing and burning is consistent for all alternatives. The KFP (Vol. 1, III-56) states that planned ignitions are acceptable to maintain old growth characteristics, i.e. old growth ponderosa pine.

Snag Habitat

Methods and Analysis Area

There are no site specific snag surveys in the [X] PSU. Or Snag surveys in the [X] planning subunit (PSU), cover approximately [X] acres (includes old growth and post harvest activity surveys). These surveys recorded snags in diameter classes based on wildlife habitat needs. Additional dead tree information from TSMRS was also considered. See project file for details.

Thomas (1979: 72-75) was used to determine the percent of the potential population level to maintain primary cavity excavator populations (snag level percent times percent of area with that snag level). The analysis process was based on the field data and applied as a worse case scenario. Old growth stands provide 100 percent snag level (SL) as do untreated forest stands (Tincher 1998). (Note: if site specific data available to replace the following forest-wide data then use that data if felt to be more accurate and document what was used and why. Reflect this in the Tables below) Partial cut stands provide at least 60 percent snag level (Johnson and Lamb 1999). Regeneration units provide 0-80 percent SL. The percent varies mostly by period of harvest (pre- vs. post KFP: 1987). Units harvested prior to KFP and those planned pre-1987 but harvested thru 1992 basically provide no cavity habitat structures (Johnson and Lamb 1999). Post 1987 KFP, (1993-2002) harvest units provide at least 40 percent SL (USDA Forest Service 2003). Roads provide 0 percent SL. Roads account for 4 acres per mile (average 33 feet wide times 5,280 feet per mile divided by 43,560 square feet per acre). There is no difference in snag density adjacent to open versus closed roads (Bate and Wisdom 2004). While some snags are lost, due to firewood cutting, within 200 feet of open roads, Tincher (1998) shows this “buffer” area still provides at least a 40 percent (range 40-80 percent) snag level. Bate and Wisdom (2004) also shows that snag densities were lower as you come closer to a town. Forest-wide, visual observations suggest SL adjacent to roads can be as low as zero. Since firewood cutting is allowed from any open road, retention of snags within 200 feet of the road over time is highly unlikely. Therefore, a worst case scenario was used where roads were buffered by 200 feet on each side to account for total snag loss. This results in zero potential on an additional 49 acres per mile of road (400’ buffer total width x 5,280’ per mile divided by 43,560 square feet/acre – rounded to next whole acre).

The KFP recommends applying minimum cavity excavator potential population levels (PPL) on a drainage or compartment basis at the following levels: maintain at least 40 percent of the PPL throughout commercial forest lands, and maintain at least 60 percent of the PPL in riparian areas (KFP 1987). These recommended percentages equate to snag levels of approximately 0.9 snags per acre for the 40 percent PPL, and 1.35 snags per acre for the 60 percent PPL. Due to the need to provide a continuous supply of snags over time, there is also a need to designate green trees as

snag replacements. Usually 2 replacements are needed for every snag needed (USDA Forest Service 1987: A 16-11). This results in the general recommendation of 1-2 snags and 2-4 snag replacements per acre or a total of 3-6 per acre. The KFP riparian standards, as amended by the Inland Native Fish Strategy (INFISH) (USDA Forest Service 1995), provide adequate snags and replacement trees to meet the riparian 60 percent SL standard. Therefore the following analysis focuses on the general forest standard of 40 percent PPL.

New science (e.g. Bull et al. 1997), since the 1987 KFP, has been incorporated into the Northern Region Snag Protocol (USDA Forest Service 2000). This protocol used the forest inventory analysis data for 1988 to 1995 to estimate snag numbers by Vegetative Response Unit (VRU) cluster. The protocol further recommends Forests use local data to fine tune the protocol recommended snag management levels. The Interior Columbia Basin Ecosystem Management Plan (DEIS Appendix 12) (USDA et al. 200b) also provides new data on snags. Like the R1 Snag protocol, the ICBEMP document recognizes the need to use local data to fine tune recommended snag management levels. The Kootenai NF has established optional snag management levels based on local data (Johnson 2005). These snag levels are greater than the KFP snag standards. **These recommendations were considered in this analysis.**

The pileated woodpecker is the MIS for snags (KFP, App.12) (see MIS section). The KFP assumption is that effects of a proposed action on MIS can be correlated to effects on other species with similar habitat requirements. As habitat for MIS species is being maintained, it is assumed that sufficient habitat, such as snags and other snag associated species are also being maintained.

The effect indicators for snag and down wood habitat are: 1) percent of the maximum population potential by PSU; 2) acres treated that reduce snag and down wood levels.

The analysis boundary for project impacts (direct and indirect) on snags is the PSU. This size is sufficient to cover home range sizes of species associated with snag and down wood habitat structure. Cumulative effects are evaluated at the Forest scale.

Affected Environment

Historically, within VRUs 1 and 2, Douglas-fir and ponderosa pine snags and live culls provided a majority of the cavity habitat, with fire resistant ponderosa pine providing most of the large (greater than 19" dbh) snags and live culls. VRU 3 has a higher component of larch snags and culls, which provides an important feature for primary excavators and secondary cavity nesters. The moister VRUs also have a component of larch snags in the early and late seral forest condition, with cedar and grand-fir also providing cavity habitat. The number of snags per acre (>10" dbh) likely approached 5-10 snags per acre within all VRUs. Fire suppression and certain logging practices have changed the amount and distribution of these components across the landscape (USDA Forest Service 2000).

Snags, broken topped live trees, live cull trees, and down logs are used by a great variety of wildlife species for nesting, denning, perching, roosting, feeding, and shelter. On the Kootenai National Forest, 42 species of birds, 14 species of mammals, and several species of amphibians are recognized as largely dependent on cavity habitat (snags and down wood). Table [X] summarizes the existing cavity habitat potential on National Forest system (NFS) lands in the [X] planning sub-unit. **(Note: if district specific data was used instead of the forest-wide data then modify table and foot notes to fit your data)**

Table [X]. Existing Population Potential on NFS lands in the [X] PSU

Habitat Component	Acres	Percent of Sub-unit	Total Snags per Acre \1	Snag Level (%)	Population Potential \2
Old Growth and Untreated Forest			[X] (2.25)	[X] (100 \3, \4)	
Partial Cut Forest \6			[X] (1.35)	[X] (60 \3, \5)	
Past Regen. Harvest (1993-present) \7			[X] (0.9)	[X] (40 \3, \5)	
Past Regen. Harvest (thru 1992) \7			0 \5	0 \3, \5	
Roads and Buffer (53 acres per mile)			0 \8	0 \3	0
Total PSU		100	- -	- -	

\1 Value in parenthesis is based on Thomas 1979 Table 18 (pg. 72) and include all snags > 10" d.b.h. This number is needed to achieve the Snag Level value in parenthesis in the next column.

\2 Percent of sub-unit (expressed as decimal) times snag level percent = proportionate population potential for each component. Sum of proportionate population potentials from all components equals the PSU potential. (Thomas 1979: 72-73)

\3 Managed snag level percent

\4 Based on Tincher (1998)

\5 Based on Johnson and Lamb (1998)

\6 Partial cut forest includes TSMRS activity codes: 4150 thru 4241

\7 Regeneration harvest includes TSMRS activity codes: 4100 thru 4149

\8 Based on Tincher (1988), Bate and Wisdom (2004), and KNF forest-wide observations for worst case scenario

OPTIONAL R1 PROTOCOL ANALYSIS: (if used then do not need the above table and associated word description)

Based on the best available local data that produced the 100 percent PPL in Johnson (2005) and site specific snag data from the [X] PSU, the current snag habitat situation is summarized in Table [X].

Table [X]. Snag Levels (10"+ dbh) by VRU on NFS lands and associated PPL

Habitat Component	Acres	% of PSU	Snags Per acre (>10")	Snags/acre 100% Level \1	VRU Snag Level (%) \2	Population Potential Level \3
VRU 1 and VRU 2S				4		
VRU 2N and VRU 3S				6		
VRU 3N				6		
VRU 4, 5, 6				12		

Habitat Component	Acres	% of PSU	Snags Per acre (>10")	Snags/acre 100% Level \1	VRU Snag Level (%) \2	Population Potential Level \3
VRU 7				12		
VRU 8, 9, 10				12		
VRU 11				8		
Total PSU	[X]	100				[X]

\1 Based on snag levels from Johnson 2005

\2 VRU snag level percent = VRU total snags per acre divided by VRU 100 percent snag level (can not exceed 100 percent)

\3 percent of PSU times VRU snag level percent = proportionate population potential level. Sum of VRU PPLs = PSU PPL

The existing PPL on NFS lands in the PSU is calculated at [X] percent (see Table [X] above). This PPL meets/does not meet current KFP direction.

Forest-wide cavity excavator potential population level was shown to be 88.7 percent in the 1997 KFP Monitoring Report (USDA Forest Service 1998: 43). The 2002 report (USDA Forest Service 2003: 22) shows 95 percent of the compartments monitored meet or exceed KFP standards for PPL and that Forest-wide the 40 percent PPL is being met. Forest riparian standards, as amended by INFS, assure the 60 percent level is being met in those areas.

Snag data for small private, corporate, and state lands was/not available. District field reconnaissance indicates limited snags, especially in the large (greater than 20" dbh) sizes. Of the [X] acres of non-NFS land in the PSU about [X] percent has been regeneration harvested, [X] percent partially treated (individual tree selection, commercial thin, etc.) and about [X] acres are in roads.

Environmental Consequences

In the Planning Subunit (PSU), all action alternatives would/would not provide at least 40 percent snag levels following management activities (see Table [X]). Potential Population Levels would be reduced by X-X percent in the PSU depending on Alternative (see Table [X]).

Table [X]. Cavity Excavator Potential Population Level (%) by Alternative based on KFP Standards

	Existing Condition	Alternatives			
		[X] (No Action)	[X] ([X])	[X] ([X])	[X] ([X])
PPL (%) In PSU	[X]	[X] ([X])	[X] ([X])	[X] ([X])	[X] ([X])
Acres Treated that Reduce Snag Level					

([X]) Value in parenthesis is percent change (+/-) due to Alternative. Change in No Action reflects cumulative effects of other known or reasonably foreseeable actions.

Optional R1 Protocol Analysis

Table [X]. Snag Level (%) by VRU by Alternative based on Desired Condition in R1 Snag Protocol

VRU Cluster	Existing Condition	Alternatives			
		[X] (No Action)	[X] ([X])	[X] ([X])	[X] ([X])
1 KNF VRUs 1, 2S	[X]	[X] ([X])	[X] ([X])	[X] ([X])	[X] ([X])
2 KNF VRUs 2N, 3S	[X]	[X] ([X])	[X] ([X])	[X] ([X])	[X] ([X])
3 KNF VRUs 3N	[X]	[X] ([X])	[X] ([X])	[X] ([X])	[X] ([X])
4 KNF VRUs 4, 5, 6	[X]	[X] ([X])	[X] ([X])	[X] ([X])	[X] ([X])
5 KNF VRUs 7	[X]	[X] ([X])	[X] ([X])	[X] ([X])	[X] ([X])
6 KNF VRUs 8, 9, 10	[X]	[X] ([X])	[X] ([X])	[X] ([X])	[X] ([X])
7 KNF VRUs 11	[X]	[X] ([X])	[X] ([X])	[X] ([X])	[X] ([X])
Total PSU	[X]	[X] ([X])	[X] ([X])	[X] ([X])	[X] ([X])

([X]) Value in parenthesis is percent change (+/-) due to Alternative. Change in No Action reflects cumulative effects of other known or reasonably foreseeable actions.

Alternative 1 (No Action)

Direct and Indirect Effects

Under alternative [X], no activities would be proposed, so no direct effect to snags is expected. Wildlife use of cavity habitat would continue at current levels. The addition or loss of snags would be dependent on other factors, such as firewood cutting, wind events, natural attrition or wildfire. The level of impact from these factors can not be calculated due to the high uncertainty in predicting occurrence and intensity levels.

Cumulative Effects

Alternative [X] (No Action) would not authorize any cumulative snag-reducing activities. Suitable cavity habitat would still occur on National Forest lands.

Cumulatively, other planned timber sale(s) (insert sale names) would regenerate [X] acres. Underburning would occur on [X] acres. The regeneration harvest associated with these projects would

cumulatively decrease the PPL to [X] percent (see No Action Alt. in Table [X] above). Firewood gathering would continue to remove some snags from the open road corridors. If private land owners build their estimated [X] miles of road and harvest the estimated [X] acres planned, there would likely be a decrease in the PPL in the sub-unit.

Activities under the Forest-wide Fuels Reduction and Wildlife Habitat Enhancement EA (FFRWHE) program would/would not occur in the PSU. These projects use prescribed fire, and as a result some, but not all, snags may be lost in treated areas. However, the burning would also result in the creation of snags (by killing live trees), which could provide both feeding and nesting habitat.

Cumulatively, with all lands considered, and all other reasonably foreseeable actions on private and corporate lands considered, sufficient cavity habitat would remain in the [X] PSU.

Effects Common to All Action Alternatives

Management activities that could reduce snags in riparian areas are restricted by Riparian Habitat Conservation Area (RHCA) standards and guidelines (USDA Forest Service 1995). For the proposed activities, this would result meeting the riparian standard for snag levels (60 percent).

Regeneration harvest would result in a long-term (50-100 years) site-specific reduction in suitable cavity habitat for species (e.g. pileated woodpeckers) that do not utilize open areas for nesting. In the long-term, the green trees retained in regeneration units would provide nesting habitat as the new forest develops into a mature stand.

Under burning and excavator piling are treatments proposed to reduce existing fuels and/or harvest-generated slash. Under burning has the potential to reduce cavity habitat because standing snags can burn up or the bases can burn through, causing them to fall over. Down logs are sometimes partially or wholly consumed by fire. At the same time, under burning also has the potential to create new snags if a green residual tree is killed by fire. The loss or gain of cavity habitat varies widely, and depends on conditions (e.g. weather, fuel loads, and fuel moisture) present when units are under burned. Excavator piling and burning would have less potential for loss or gain of cavity habitat because the burn treatment would be concentrated in pile areas, and piles would generally be located away from snags and leave trees.

Effects of the Action Alternatives [X], [X]

Direct and Indirect Effects

Implementation of the action alternatives would have direct effects on snag habitat. Table [X] summarizes those project activities that would change snag levels. Also see Table [X] above for the changes in PPL.

Table [X]. Acres of project activities that impact Snag Level by Alternative

Activity	Alternatives			
	[X] (1) (No Action)	[X]	[X]	[X]
Regeneration Harvest				

Activity	Alternatives			
	[X] (1) (No Action)	[X]	[X]	[X]
Partial Cutting				
New Road Construction				
Prescribed Fire [X]				

[X] Acres treated with prescribed fire may increase and/or decrease snag levels

\1 the acres in the No Action Alternative are the cumulative effects from other reasonably foreseeable projects. They can be added to the acres in the action alternatives to see cumulative effect acres

Regeneration harvest in Alternatives [X], [X], and [X] would reduce snag availability specific to the unit areas, and use would change from those species requiring snags with nearby live tree cover (e.g. pileated woodpeckers) to those which would use snags in open sites (e.g. bluebirds, northern flicker, flycatchers). Regeneration harvest can potentially impact long-term cavity habitat, since fewer trees are left on site to be recruited as snags or snag replacements.

Commercial thinning in Alternatives X, X, and X would retain higher levels of existing snags than regeneration units, and green replacement trees would be more readily available for future habitat.

Timber harvest is proposed in MA 10. Loss of snags in MA 10 unit is likely to occur due to OSHA regulations. Specifically, OSHA requires that snags in harvest units be felled to ensure the safety of forest workers. Alternatives [X],[X] and [X] propose [X], [X] and [X] units in MA 10, respectively. To meet KFP standards, Alternative [X] drops all units in MA 10. All snags felled for safety reasons would be left on site.

In the long term, the proposed improvement harvests identified in the action alternatives are expected to provide for the continuity of large diameter ponderosa pine and Douglas-fir. This in turn provides a long-term benefit to cavity-dependent species, as over time they would become snags. The improvement harvest would follow a basal area reduction prescription. A majority of the ponderosa pine - Douglas-fir stands would retain larger and older trees in the over-story to maintain vertical structure and provide future replacement snags. The prescription would result in the removal of small diameter (less than 7" dbh) snags and whips in the under-story, which would likely be removed or toppled during logging operations.

On units planned for skyline yarding snags are expected to be lost due to OSHA safety standards. This may also occur on tractor/skidder units, depending on snag condition, location and size in relation to skid trails and falling personnel. Adequate live trees of larger sizes would be available to provide habitat features needed by snag dependent wildlife in the future.

The subsequent proposed prescribed under burning would reduce the small diameter Douglas-fir encroachment, and any trees that may be killed during the burning would result in the creation of snags. Additionally, fire may facilitate decay in surviving trees by proving an entry point for fungi, which increases the likelihood that the trees would be used by cavity excavators (Smith et al. 2000).

Site preparation burning, and prescribed fire on non-harvest units may result in some fire killed trees and subsequent new snag feeding/nesting sites. Within proposed harvest units, retention of all snags greater than 10" dbh is planned. This would help compensate for deficient snag numbers in existing harvest units.

Pronone use in [X] units under alternative [X] would have no effect on snag habitat.

Proposed pre-commercial thinning on approximately [X] acres would occur in existing regeneration units. This would have no direct, indirect or cumulative effect on existing snags. Since roads opened for thinning would not be opened to the public, additional removal of snags for firewood gathering should not occur.

The proposed improvement (enlargement) of trailheads may impact some trees or snags.

Cumulative Effects

Cumulatively, when other activities including the harvest on both private and federal lands discussed under alternative 1, and all past, present, and reasonably foreseeable activities on both private and federal lands are considered, habitat on federal lands is considered sufficient to provide cavity habitat to cavity dependent species. After implementation of alternative [X] and the reasonably foreseeable Forest Service projects, the primary cavity excavator potential population level on NFS lands is estimated to drop from [X] percent to [X] percent. After implementation of alternatives [X], [X], and [X] and the reasonably foreseeable projects, the primary cavity excavator potential population level on NFS lands would decrease from [X] percent to [X] percent. This level of snag habitat is still expected to provide for an associated species population level above 40 percent, which is thought to be the minimum needed to maintain self-sustaining populations of snag-dependent wildlife (Thomas 1979:72).

The 2002 KFP monitoring report (USDA Forest Service 2003) documents results for the past 16 years, and indicates the Kootenai National Forest is providing sufficient cavity habitat at the drainage or compartment as well as the Forest scale.

Regulatory Consistency

All proposed units in alternatives [X], [X], [X] maintain at least 40 percent snag level. No alternative causes the [X] PSU overall PPL to drop below the general forest 40 percent or riparian 60 percent primary cavity excavator potential population level. This is consistent with KFP standards.

KFP cavity habitat standard (40 percent PPL) in MAs 15, 16 and 17 is/is not met.

KFP cavity habitat standard in MA 10 is/is not met. Alternatives [X], [X] include a project-specific amendment to suspend the requirement to retain all existing cavity habitat in MA 10. The amendment is for the [X] project area/ [X] PSU, only for the duration of this specific project. All units would still meet the 40 percent minimum snag level.

Down Wood Habitat

Methods and Analysis Area

Down wood habitat is woody material derived from tree limbs, boles, and roots in various stages of decay (Graham et al. 1994), and performs many physical, chemical and biological functions in forest ecosystems. Coarse down wood habitat is generally defined as any down wood material larger than 3 inches in diameter. The minimum piece size to qualify as a down “log” is 8 feet long with a large-end diameter of six inches or more (Bull et al. 1997). The ecological processes and functions of down wood material are discussed in many research papers (e.g. Bull et al. 1997; Graham et al. 1994; Maser and Trappe 1984; Maser et al. 1988). These are incorporated by reference.

Data sources for down wood habitat include District surveys for old growth and surveys of existing regeneration units. The survey procedure for old growth, which includes the down wood survey, is discussed in (CITE your district’s old growth process paper). Survey procedure used for existing harvest units is located in the project file. Data was collected on coarse wood material over 10 inches in diameter.

The analysis boundary for project direct effects is the treatment units. Cumulative effects are analyzed at the planning sub-unit scale.

Affected Environment

Use this version if you have down wood data:

Current KFP direction (USDA Forest Service 1987: A16-6) is to meet timber/silviculture guideline #9, which is to leave 5 to 15 tons of large (greater than 12” diameter) down wood per acre. Data in Table [X] suggest this guideline is being met in old growth and past harvest areas.

Table [X]. Coarse woody debris (average tons per acre) >10 inches in diameter [X] PSU

Down Wood Survey Sites	Acres Surveyed	Tons/Acre (average)
Down woody debris on all surveyed acres of old growth	[X]	[X]
Down woody debris on all surveyed acres of past timber harvest units	[X]	[X]

[X] cite source of table values

Although tonnage was not summarized by VRU, designated old growth habitat appeared to have volumes much lower than expected historical conditions (citation). However, since down wood material in the 3-9 inch range was not tallied, the total tonnage was likely underestimated. Tonnage also varied considerably in the past harvest units. This was likely due to site preparation methods used after timber harvest, and the number of snags and standing trees left after harvest, which could eventually be recruited to the forest floor.

Recommendations for downed woody debris are described in the [X] Landscape Assessment (USDA Forest Service 200[X]) and are incorporated by reference.

Use this version is you do not have down wood data:

The KFP directs that sufficient amounts of large down wood material be retained on site for wildlife habitat needs, nutrient release back into the soil, and site protection for timber stands regeneration. The current KFP direction (USDA Forest Service 1987: A16-6) is to meet timber/silviculture guideline #9, which is to leave logs greater than 12” diameter scattered through out harvest units (a few pieces per acre). Five to 15 tons per acre is recommended.

The project is designed to meet guideline #9. Reserve trees are provided to assure future down wood habitat.

Environmental Consequences

Alternative 1 (No Action)

Direct and Indirect Effects

In the short-term, this alternative would not change the current condition or availability of coarse woody debris within the PSU. Historical timber harvest has resulted in a decrease in the amount of coarse woody debris available in some existing regeneration units.

Effects common to all action alternatives - Direct, and Indirect, Effects

The proposed fuel treatment/wildlife habitat enhancement units ([X] acres) would retain adequate down wood. Spring burning prescriptions and conditions should allow for the maintenance of larger pieces of organic matter on the forest floor. Fall burning may increase the risk of large woody consumption by fire, but fire-killed snags would be recruited over time.

In proposed timber harvest units, other than regeneration units (e.g. seed tree removal), implementing recommended down wood material guidelines under all alternatives is expected to ensure the maintenance of adequate habitat. Implementation of KFP snag guidelines would maintain some cavity habitat and subsequent down wood habitat recruitment to the forest floor over the next several decades. Application of these guidelines in all harvest units would ensure distribution of down wood material across the landscape. Any snag felled due to OSHA standards would be required to remain on site. The forest guideline to leave 5-15 tons/acre of 12”+ diameter down wood is/is not met.

Site preparation methods are similar between the action alternatives (please see Chapter 2 for the differences in acres between alternatives). Grappling piling of logging slash can more easily separate fine fuels from coarse wood material. Charred coarse wood material with checks and cracks does not substantially interfere with the decomposition or function of this material.

Cumulative Effects

The planned harvest units from reasonably foreseeable projects (insert project names) would impact a total of [X] acres and are expected to retain the necessary down woody.

The FFRWHE program of slashing and/or burning would retain an adequate amount of down woody by re-introducing fire. Some existing down woody would be consumed by fire, while future recruitment would occur due to the creation of snags. Other annual activities, including firewood gathering, may reduce the amount of down woody in the road corridor.

On Plum Creek Timber Corporation land the timber harvest would impact availability of downed woody in the long-term due to the removal of large over-story trees.

Regulatory Consistency

There are no goals or standards for downed woody debris in the KFP. It does contain the goal to: “Maintain diverse age classes of vegetation for viable populations of all existing native, vertebrate, wildlife species.. (FP, Vol. 1, II-1, goal #7).” The KFP provides guidelines in Appendix 16, Cavity Habitat Management (FP, Vol. 2, App. 16:6 - Guideline #9). All alternatives are consistent with the KFP, as a wide range of successional habitats, and associated amounts of downed wood would be available.

Management Indicator Species

Regulatory Framework

Based on direction found in the National Forest Management Act (219.19 (a)(1)), the KFP (FP) (1987, Appendix 12) identifies management indicator species (MIS). The FP states, “the maintenance of viable populations of existing native and desirable non-native vertebrate species, as monitored through indicator species, would be attained through the maintenance of a diversity of plant communities and habitats.” (FP II-22)

Table [X]. Management Indicator Species

Species	Habitat Represented	Comments
Grizzly Bear (<i>Ursus arctos</i>)	General Forest	See T&E Section
Gray Wolf (<i>Canis lupus</i>)	General Forest	See T&E Section
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Rivers and Lakes	See T&E Section
Peregrine Falcon (<i>Falco peregrinus</i>)	Cliffs	See Sensitive Species Section
Elk (<i>Cervus elaphus</i>)	General Forest	
White-tailed Deer (<i>Odocoileus virginianus</i>)	General Forest	
Mountain Goat (<i>Oreamnos americanus</i>)	Alpine	No alpine habitat in project area. Mtn. Goats not found in project area. Project would have no impact on Mtn. Goats. No further analysis required
Pileated Woodpecker (<i>Dryocopus pileatus</i>)	Snags, Old Growth	Also see old growth and snag sections

Use the following If a featured MIS was selected, otherwise delete and do both elk and white-tailed deer analysis.

Elk and white-tailed deer are two MIS species that represent similar habitat. Summerfield (1991) recommends determining which big game species would be featured in a particular area, since species winter requirements differ. Based on KFP direction, the biological potential of the area, state wildlife management objectives, public comments during scoping and the information contained within the Kootenai Conservation Plan (Johnson 2004: Appendix H); an emphasis species was identified for this report.

As a general rule the following process was used to determine the featured species. In the Conservation Plan the KNF and MFWP Elk Task Force established management emphasis designations for elk by planning subunit (Id: Appendix H, Attachment B, page H-12 and 2600 letter of 5-16-1997). In planning subunits with high emphasis for elk, elk would be the emphasis MIS in this report. For planning subunits in which elk are a low emphasis, white-tailed deer will be the indicator for general forest habitat in this report. For planning subunits in which elk are moderate emphasis, the project biologist will designate the general forest indicator, based on site specific information about elk and deer use in the PSU. The (Insert Name) Planning Area is low/moderate/high emphasis for elk; therefore elk/white-tailed deer will be the general forest indicator in this analysis.

Example Rationale Statement for selecting WTD:

White-tailed deer were selected as the general forest indicator in this Planning Subunit (PSU) because; 1) the dominant ungulate species using winter range in this PSU is white-tailed deer, 2) Montana Department of Fish, Wildlife, and Parks (MDFWP) has identified the winter range in this PSU as critical for white-tailed deer, 3) the joint task force of Kootenai National Forest and MDFWP (Johnson 2004) identified this PSU as a low emphasis for elk management, and 4) public comments focused on white-tailed deer.

Elk

Methods and Analysis Area

Elk are one of the indicator species for general forest habitat condition. The (insert name) project area is located in the [X] Planning sub-unit (PSU), which is identified as an area where elk are emphasized over white-tailed deer, another general forest indicator specie (KNF MFWP Elk Task Force 1997).

Elk population ecology, biology, habitat description and relationships identified by research are described in Murie (1979) and Toweill and Thomas (2002). That information is incorporated by reference. Elk population and harvest data come primarily from Montana Fish, Wildlife and Parks (MFWP) data. Additional information used is from recent District wildlife observation records and Forest historical data (NRIS FAUNA). The analysis boundary for project impacts to individuals and their habitat is the [insert name] planning sub-unit. The boundary for determining population trend and viability is the MFWP elk hunting district # [X] and the Kootenai National Forest, respectively.

The effects analysis is based on direction provided in the KFP (1987) as amended and Coordinating Elk and Timber Management (MFWP 1985). Additional guidance is provided by Defining Elk Security: The Hillis Paradigm (1991). Potential effects to elk habitat are identified by analyzing four effects indicators; cover/forage ratio, habitat effectiveness, security, and key habitat components.

Cover/Forage Ratios: Cover/forage ratio portrays the percentage of area that meets elk requirements for cover and forage. Cover provides protection from weather, predators, and humans. Two different types of cover have been recognized. Hiding cover is defined as vegetation capable of hiding 90 percent of an elk from the view of a human at 200 feet. Thermal cover is a stand of conifers that are 40 feet tall with 70 percent crown closure. Forage areas are those natural or man-made areas that do not qualify as cover (hiding or thermal) (Thomas 1979: 109, 114, 116). Recently, elk use of thermal cover and foraging areas has been reexamined and this research indicates that providing thermal cover is not a suitable solution for inadequate forage conditions (Cook et al. 1998).

The KFP (1987) recommends a cover/forage ratio of 30/70 percent for elk winter range (measured on the combined acres in MA 10 and 11 lands). Summerfield (1991) recommends cover to be 60 percent on winter and summer range (measured on all MAs not winter range). On elk winter range the cover should be at least 40 percent thermal cover (Id.). Summer range cover may be in any combination of hiding and thermal cover (Id.). The KNF Plan (1987) also identifies the general maximum size for an opening as 40 acres. Summerfield (1991) recommends that the opening size standard be the same as the standard for grizzly bear (a maximum of 600 feet to cover from any point inside an opening).

Cover/forage ratios for summer range in the PSU, C/F ratio for winter range in the PSU, cover percent for combined MAs 15, 16, 17 acres in the PSU, the percent thermal cover on winter range, and the number of regeneration harvest units greater than 40 acres in size at the PSU scale are the measures for effects.

Habitat Effectiveness: The habitat effectiveness of an area refers to the percentage of habitat that is usable by elk outside of the hunting season that does not contain open roads. Numerous studies have shown that there is a strong negative correlation between elk use of an area and the density of open roads, even if those roads are only lightly traveled (Frederick 1991).

The KFP (1987) calls for an open road density in MA 12 (Big Game Summer Range and Timber) of 0.75 miles per square mile. This translates into a habitat effectiveness value of 68 percent (Lyon 1984). On MAs 15, 16, 17 and 18 the KFP ORD standard is less than 3.0 miles per square mile, which equates to 38 percent habitat effectiveness.

The percent HE for the PSU, ORD for MA 12, and ORD for the combined MA 15, 16, 17 and 18 lands in the PSU are the measures for effects.

Security: Security areas are defined as areas that are larger than 250 contiguous acres in size and more than one half mile from an open road (Hillis et al. 1991). These areas offer elk refuge through reduced vulnerability during the hunting season and can greatly influence the age structure and composition of a herd.

The KFP has no standard for security. A panel of state and federal wildlife biologists convened in 1996 and produced, "Integrating Kootenai National KFP and Fish, Wildlife and Parks Elk Management Plan Final Task Force Report (Johnson 2004: Appendix H-B). This document identified security as important component in elk habitat and that the Hillis et al. (1991) method would be used to calculate it. This method recommends a minimum of 30 percent of an elk's fall use area be maintained as security habitat. Since elk use in the fall could be any place within a PSU, the 30 percent minimum is measured against the PSU NFS acres. Appendix H-B (Johnson

2004: p. H-12) also provides the elk management emphasis level by Planning Sub-Unit as well as definitions for security levels (H-B-13).

The percent security in the PSU will be the measure for effects.

Key Habitat Components: Wallows, wet meadows, and bogs will be avoided when constructing roads (KFP 1987; III-44, 49). When these areas are located they will be mapped and managed as riparian areas.

The number of features potentially impacts by the project will be the measure for effects.

Affected Environment

The (insert name) PSU is located in elk hunting district [X]. The population in the hunting district is decreasing/stable/increasing (MFWP 2004). Currently, the cover/forage ratio is [X]/ [X] percent, habitat effectiveness is [X] percent, and [X] percent of the project area is secure habitat (Table [X]). The PSU is managed with a high/medium/low emphasis for elk (Johnson 2004: App. H-B: p. H-12). There are [X] wallows in the PSU. Calving areas are/are not known to occur in the PSU.

Environmental Consequences

Direct and Indirect Effects

Alternative 1 (No Action)

Cover/Forage Ratios

Under Alternative [X] (no action) all cover/forage ratios would remain unchanged, in the short-term. However, as trees and shrubs continue to grow and mature the number of acres of productive foraging habitat would decline. As trees continue to encroach upon forage openings and tree canopies close the quality of the forage and number of acres producing forage would decline. The increased tree density and continuous fuel profile from the ground up to the main canopy puts the area at risk of severe wildfire (See Fire section for additional information). If severe wildfires occur, it is likely that forage habitat would be greater than 600 feet from cover, making it less likely to be used by elk

Open Road Density and Habitat Effectiveness

Open Road Densities (see Table [X] below) and Habitat Effectiveness would remain unchanged ([X] percent) under the No Action Alternative.

Security

Secure habitat for elk would remain unchanged ([X] percent of the planning area) under the No Action Alternative.

Special Habitat Features

Under the No Action Alternative [X] [X] acres of wetlands would remain. Timber harvest would not occur within the Streamside Management Zone of any wetlands.

Table [X] summarizes the effects to elk habitat in the [X] PSU by alternative.

Table [X]. Elk habitat components by Alternative

Habitat Component	Alternatives				
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]	[X]
PSU Cover/forage Ratio Summer Range (guide 60/40) (non-winter range MAs)					
PSU Cover/forage Ratio Winter Range (MA 10 and 11) (guide 60/40)					
Thermal Cover % Winter range (MA 10 and 11) (guide > 40%)					
PSU Cover % (MA 15, 16, 17) std. >15%					
PSU Security Cover % (guide >30%)					
PSU Habitat Effectiveness (%) (guide >68%)					
PSU Open Road Density (mi/sq.mi.) (MA 12) (std. < 0.75)					
PSU Open Road Density (mi/sq.mi.) (MA 15,16,17, and 18) (std. <3.0)					
# Openings > 40 acres					
# Special Habitat Features impacted (if known) 1					
# Movement Areas Affected					

1 Project design includes requirement to buffer special habitat features if found during project layout.

All Action Alternatives

Cover/Forage Ratios

Each alternative includes prescribed burning (see Alternative descriptions), which would occur primarily on south and west slopes that make up big game winter range. Burning would improve the palatability and enhance the quality of the forage produced on these acres.

Cover/forage ratios on winter range would/would not shift toward the KFP Standard because of timber harvest in MAs 10 and 11 (Table [X]). The largest change would occur under alternative [X], which proposes to harvest a total of [X]X acres.

Summer range cover/forage ratio would become [X]/ [X] (Table [X]) under alternative X, which is the largest change in this ratio. Each of the alternatives includes units that would result in

openings greater than 40 acres. This could result in openings that may not be fully utilized by elk as foraging areas. However, stringers and groups of trees would be left within the units to provide screening and minimize the effect of the openings. There may be short-term disturbances within identified big game travel corridors due to project related activities. Timber management in riparian habitat conservation areas would follow INFS guidelines and the state of Montana Streamside Management Zone law, ensuring the maintenance of travel corridors within riparian zones. Movement corridors would be maintained (see maps in project file).

Open Road Density and Habitat Effectiveness

Under three of the action alternatives ORD in MA 12, timber–big game summer range, would increase and habitat effectiveness would decrease (Table [X]). Under alternative, [X] ORD may reach [X]. [X] mi./sq.mi., with an HE of [X] percent. The MA 12 ORD standard (less than 0.75 miles/square mile) is not met in Alternative X. Implementation of this alternative requires a KFP amendment. Under all alternatives, with completion of all harvest related activities, ORD would return to [X]. [X] miles/sq.mi.

Table [X] (above) shows the ORD for the combined PSU acres in MAs 15, 16, 17 and 18. All alternatives would meet the KFP standard of equal to or less than three miles per square mile. Alternative [X] exceeds the 3 mile/square mile standard. A KFP amendment would be required.

Security

Because of harvest related activity, big game security in the project area may reach [X] percent (Table [X]). Reductions in security would be temporary and extend only to the life of the projects. Upon completion of all projects related to this analysis big game security in the project area would return to [X] percent. Secure displacement habitat exists adjacent to the project-area in the [X]X. Access to secure habitat would be maintained throughout the life of the projects .

Special Habitat Features

Impacts to special habitat features, by Alternative, are summarized in Table [X] above. With the design criteria to buffer these features and/or the timing restrictions on management activities potential displacement of elk using these features in not likely to occur.

Summary

In summary, each of the action alternatives proposes activity in big game habitat. Alternative [X] begins the process of shifting the cover/forage ratio toward one more suitable for elk with no reduction in security. Alternatives [X], [X], and [X] produce greater changes in cover/forage ratios, with alternatives [X] and [X] actually or nearly achieving the desired condition. However, in order to achieve these changes, increases in open road density and reductions in security are required. These changes in ORD and security would be short-lived, upon completion of the project, total road density in the area would decrease due to the proposed road obliteration, and security levels would return to pre-project levels. Some short-term displacement of big game may occur when harvest occurs in travel corridors or as security is decreased during the life of the project .

The management activities and resulting changes in habitat conditions disclosed above are likely to result in short-term displacement effects on elk. Elk numbers are/are not expected to change

dramatically, however with increased forage availability and maintained security levels the population could show a slight increase.

Cumulative Effects

The cumulative effects of the KFP amendment for changing the open road density requirements have been analyzed and the results are available in the project file. In summary, this amendment, along with five other previously approved forest-wide ORD amendments would slightly lessen the elk carrying capacity on the forest. Approximately [X] percent of the available elk habitat has been affected by this amendment and the other similar amendments. This change, on a small part of the available habitat on the forest, would not result in a measurable change in big game populations. The cumulative effects of past and present land use patterns as well as random natural events have been taken into consideration in describing the existing condition. There are no reasonably foreseeable activities planned that could change the magnitude or scope of effects described above.

Regulatory Consistency

KFP

All alternatives would meet/would not meet KFP direction for big game species (FP Vol. 1, II-1 #6).

All alternatives, with their associated KFP amendments and Regional Forester approval for the over 40 acre unit request, are consistent with the KFP (1987).

State Elk Plan

The project area is located in the (insert name) Elk Management Unit identified in the MFWP Statewide Elk Management Plan. The proposed project is/is not consistent with that document.

Summary General Forest MIS Statement

Based on the analysis for elk and the other general forest habitat indicators and the KNF Conservation Plan (Johnson 2004), habitat for general forest species should provide sufficient quality and quantity of the diverse age classes of vegetation needed for viable populations. Since sufficient general forest habitat is available, the populations of species using that habitat should remain viable.

White-tailed Deer

Methods and Analysis Area

In the KFP, white-tailed deer were selected as one of the management indicator species representing requirements in General Forest habitat. White-tailed deer population ecology, biology, habitat description and relationships identified by research are described in Baty (1995), Munding (1981), Morgan (1993), Lyon (1966), Thomas (1979), and Mackie et al. (1998). For this analysis, white-tailed deer were selected as the emphasis species over elk based on management emphasis data contained in attachment B from Appendix H of the Kootenai Conservation Plan (Johnson 2004) and site specific knowledge of deer and elk use in the [X] PSU.

Indicators used to assess effects on white-tailed deer are cover/forage, openings sizes, open road densities, movement areas, and key habitat components. Data sources used in this analysis

include Montana Fish, Wildlife and Parks research and plans, District vegetation layers, INFRA roads layers, Summerfield (1991), and field surveys by District biologists and data collection crews.

The (Insert Name) Planning Subunit will be used to analyze general forest indicator species parameters and is sufficiently large enough to address potential effects of the proposed actions on white-tailed deer populations at a landscape level. Population information is based on hunting district data provided by MDFWP.

Cover/forage: An important consideration when evaluating big game habitat is the distribution of cover and forage within a given area. A cover-to-forage ratio describes the percentage of an area contained in each component. Cover is divided into hiding (vegetation capable of hiding 90 percent of an elk at 200 feet), and thermal (stands of timber greater than 40 feet tall, with canopy closure of greater than 50 percent; Baty 1995). A TSMRS data query, field survey or other method was used to identify hiding and thermal cover in the PSU. Forage openings are identified by a combination of TSMRS queries to determine type and age of past harvest and field visits to confirm areas in question.

The KFP (1987) recommends a cover/forage ratio of 70/30 percent for white-tailed deer winter range (measured on the combined acres in MA 10 and 11 lands). Summerfield (1991) recommends cover to be 70 percent on winter and 60 percent on summer range (measured on all MAs not winter range). On white-tailed deer winter range the cover should be at least 50 percent thermal cover (Id.). Summer range cover may be in any combination of hiding and thermal cover (Id.).

In addition the KFP sets the standard for a combination of hiding and thermal cover on MAs 15, 16, and 17 for white-tail deer as greater than 30 percent.

Cover/forage ratios for summer range in the PSU, C/F ratio for winter range in the PSU, cover percent for combined MAs 15, 16, 17 acres in the PSU, and percent thermal cover on winter range in the PSU are the measures for effects.

Opening Sizes

In general, forage utilization decreases when big game is required to venture more than 600 feet from cover (Thomas 1979; 117). Under MA 11 and 12, KFP standards state that openings “should generally not exceed 20 acres for white-tailed deer.” In MA 10 timber harvest is generally only done to maintain or enhance big game winter range thus opening size would be minimized. Summerfield (1991) recommends that the opening size standard be the same as the standard for grizzly bear (a maximum of 600 feet to cover from any point inside an opening).

The number of regeneration harvest units in MAs 11 and 12 greater than 20 acres in size will be the measure for effects.

Open Road Density

Open road density (ORD) is the miles of open roads per square mile. The KFP (1987) identifies a maximum ORD of 0.75 miles per square mile for MA 12, Big Game Summer Range. No maximum ORD was identified for winter range (MA 10 and 11); however, road use and timber harvest activities would normally be restricted during the winter season (December 1 – April 30). On MAs 15, 16, 17 and 18 (which also provide summer range habitat) the KFP ORD standard is less than 3.0 miles per square mile.

The ORD for MA 12 and ORD for the combined MA 15, 16, 17 and 18 lands in the PSU are the measures for effects. Effects of winter range (MAs 10 and 11) road use during the winter period would be disclosed subjectively.

Movement Areas

In harvest and thinning areas, forested cover would be provided as movement corridors for wildlife in summer and winter range areas (KFP, MA 12 Wildlife Standard #7 and MA 11 Timber Standard #6). For white-tailed deer the corridor between openings in winter range should be as wide as the recommended opening size, but at least 600 feet (Summerfield 1991). A cover/forage map using District vegetation layers provides a visual identification of movement corridors and is found in the project file.

Key Habitat Components

Wallows, wet meadows, and bogs would be avoided when constructing roads (KFP, 1987; III-44, and 49). When these areas are located they would be mapped and managed as riparian areas.

The number of features potentially impacted by the project would be the measure for effects.

Affected Environment

The Planning Area is within MFWP Hunting District # [X]X. Population information in Hunting District # [X]X indicates an increasing/decreasing/ or stable population (Cite most current KFP Monitoring Report: e.g. White-tailed deer are the most abundant and widespread big game animal on the Forest (KFP Monitoring Report 2003). AND/Or cite most recent MFWP big game report data for that hunting district.

Cover/Forage

The cover/forage ratio is [X]/X for the entire PSU summer range. In comparison to the desired cover/forage condition of 70/30, the current condition provides/does not provide suitable summer range cover and forage for white-tailed deer.

Within the project area, there are [X] [X] acres of winter range (MAs 10 and 11). The cover/forage ratio is [X]/X. There are X, [X]X acres within winter range that are currently estimated to function as thermal cover ([X] percent of the winter range). In comparison to the desired minimum of 50 percent thermal cover, the current condition provides/does not provide suitable cover during extreme weather conditions.

In MAs 15, 16, and 17 there is currently [X] percent hiding/thermal cover which meets or exceeds the minimum cover of 30 percent. The white-tailed deer population in the PSU would be maintained, however individuals could be impacted negatively during extreme weather if suitable thermal cover is not available.

Opening Sizes

Under MAs 11 and 12, recently created forage openings range from [X] to [X]X acres in size. [X] openings are greater than 20 acres. [X] acres are greater than 600 feet to cover and would not be readily available as foraging habitat. Available forage is well-distributed/ not well-distributed across the PSU resulting in maintaining the current population of white-tailed deer in the PSU or negatively affecting individual animals in the (insert name) portion of the PSU.

Winter range typically falls within Vegetation Response Unit (VRU) 3 which is characterized by low to moderate-intensity fires that create patch sizes of 5-50 acres (USDA Forest Service 1999).

Open Road Density

The project area contains [X] [X] acres of allocated summer range (MA 12). Current open road densities in the PSU are 0. [X] miles per square mile (mi/sq.mi.) in MA 12, and 0. [X] mi/sq.mi. in MAs 15, 16, 17, and 18. The desired condition is at or below 0.75 mi/sq.mi. in MA 12 and at or below 3.0 mi/sq.mi. in MAs 15, 16, 17, and 18 (USDA Forest Service, 1987; III-51, 65, 69, 75, 80). The current open road density in MA 10 and 11 results in winter range security that provides/does not provide the opportunity for undisturbed areas of wintering habitat.

Movement Areas

Most existing openings have adequate/inadequate adjacent cover available. Portions of certain fire areas may lack suitable cover, affecting the ability of some species to move freely or securely through the landscape. Movement corridors along drainage bottoms and ridge tops are especially important for many wildlife species; most of these areas or travel ways are/are not intact. The desired condition is to avoid harvesting before adjacent harvest units have reached hiding cover (USDA Forest Service 1987; III-49).

Key Habitat Components

Wallows, bogs, or wet meadows have/have not been identified in the PSU. There are [X] known sites in the PSU. A map of these areas can be found in the Project File.

Environmental Consequences

(Cover/forage: optional effects statement)

The size, shape, and interspersions of cover and forage, as well as the position relative to landscape features (riparian zones, ridges, saddles, roads) greatly influences the use of these components by big game. Morgan (1993) concluded that riparian areas and adjacent uplands containing pole/immature timber were very important as centers of deer use in summer. Many of these habitat complexes were found between 1,100 and 1,700 meters in elevation on east to southeast aspects on the Talley Lake Ranger District of the Flathead National Forest. In this area cutting units were determined to have minimal effect on white-tailed deer if located on northerly and westerly aspects, ridgetops, and other sites more than 750 meters from riparian habitat. KFP standards consider a 70/30 ratio of cover to forage optimal for white-tailed deer on summer and winter range.

Table [X] summarizes the effects to white-tailed deer habitat in the [X] PSU by alternative.

Table [X]. White-tailed Deer Habitat Components By Alternative

Habitat Component	Alternatives				
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]	[X]
PSU Cover/forage Ratio Summer Range (60/40 guide) (non-winter range MAs)					

Habitat Component	Alternatives				
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]	[X]
PSU Cover/forage Ratio Winter Range (70/30 guide) (MA 10 and 11)					
Thermal Cover % (guide $\geq 50\%$) Winter range (MA 10 and 11)					
PSU Cover % (MA 15, 16, 17) (std. $\geq 30\%$)					
PSU Open Road Density (mi/sq.mi) ¹ (MA 12) (std. ≤ 0.75)					
PSU Open Road Density (mi/sq.mi) ¹ (MA 15, 16, 17, and 18) (std. ≤ 3.0)					
# Openings > 20 acres (MAs 11 and 12)					
# Key Habitat Components impacted (if known) <u>1</u>					
# Movement Areas Affected					

¹ Project design includes requirement to buffer special habitat features if found during project layout.

Typical winter range occurs in VRUs 1, 2, and 3. Following a disturbance in these VRUs, vegetation would once again provide cover in 20-25 years (personal communication between Chris Reichert [KNF Forest Silviculturist] and [X] [Wildlife Biologist] on [X]/[X]/200[X]). Response time for reestablishing cover on summer range (VRUs 4, 5, 6, 7, 8, and 9) is 15-20 years.

Direct and Indirect Effects

Alternative 1 (No Action)

Cover/forage: Alternative [X] would not increase forage availability from regeneration harvest, intermediate harvest or commercial thinning. Existing forage would eventually develop into hiding cover, and the level of forage would decline over time unless harvest or other events, such as a wildfire or windstorm, created additional forage. Forage levels would not increase, and thermal cover would not be reduced. The potential for large-scale fires exists; however, the resulting juxtaposition of cover to forage following large fires would not be as favorable because forage could be long distances from cover due to larger opening sizes. Overall, white-tailed deer populations would probably be maintained, however, individuals animals may be more vulnerable to predation and hunting mortality in areas where large openings develop following wildfire. This impact would last until vegetation again provides hiding cover (about 15 to 20 years, depending on growing site). Relate to the current condition of MA 12, MAs 10/11, and MA 15-17 and their vulnerability to large stand-replacing fires in your PSU.

Opening Sizes

Alternative [X] would not increase the number of openings over 20 acres because no harvest activities would occur. As a consequence, no new forage would be created. A regular influx of new forage would be best for big game and other species requiring or preferring early successional stages. Over the next 5-10 years, vegetative succession would reduce the number of existing openings, including those over 20 acres, as vegetative growth changes the characteristics of the site toward hiding cover. Wildfires generally create openings much larger than 20 acres, as evident from the fires of 1994 and 2000. The risk of wildfire escaping initial suppression efforts and developing into a large stand-replacing fire would be higher with Alternative [X] than for the action Alternatives, due to the persistence of fuels and lack of contiguous fuel breaks (USDA Forest Service 2004b; Peterson et al. 2005). Associate this potential risk of stand-replacing fire with the current conditions in MA 11 and 12 in your PSU. Does it apply? Wildfire suppression would continue to occur in accordance with KFP direction. During this planning cycle, white-tailed deer populations would be maintained.

Open Road Density

Alternative [X] would result in no change in ORD for any of the MAs.

Movement Areas

The ability of big game to move through the landscape would not change in the short-term because no removal of forested cover would result from Alternative [X]. In the long-term, a lack of fuel reduction activity may result in a higher risk of stand-replacing wildfire and subsequent loss of movement areas. Relate this potential risk of stand-replacing fire to the conditions of MA 11 and 12 in your PSU. Does it apply? This would not affect the overall population but rather some individuals would be affected by potential changes in local movement patterns.

Key Habitat Components

The No Action alternative would not impact any key habitat components.

Effects of Action Alternatives

Cover/Forage

Alternative [X], closely followed by Alternative [X], would result in the highest increase in forage availability (refer to Table [X] for details). The desired condition of 70 percent cover in MAs 10 and 11, would/would not be maintained. A minimum of 30 percent cover would/would not be maintained in MAs 15, 16 and 17. About X, [X]X acres (Alternative X) and X, [X]X acres (Alternative X) of forage habitat within 600 feet to cover would be created following activities. This would provide a greater influx of new foraging habitat than Alternative [X]. Thermal cover would be maintained on at least [X] percent of the winter range in the PSU. The resulting cover/forage ratio and winter thermal cover percentage maintains/enhances/moves away from the KFP desired condition in MAs 10, 11, and 12. Current populations of white-tailed deer would likely be maintained under Alternatives [X] and [X]. or Individual animals may be affected by a localized decrease in forage availability or loss of thermal cover under Alternative [X]; no overall change in population is expected.

Opening Sizes

Alternative [X] would show the largest increase in the number of openings greater than 20 acres, both in individual unit sizes and by combining existing openings into larger patch sizes (see Table [X]). Alternative [X] would require Regional Forester approval for the creation of large openings

(more than 40 acres). Edge habitat favored by big game would be less available under this alternative than conditions where there were more numerous and smaller openings, such as in Alternative [X]. This would result in some foraging habitat that is less available due to its distance-to-cover. Alternatives [X] and [X] best resemble reference condition patch-sizes, which ranged from [X] to [X]X acres. Following implementation of Alternatives X and X, patch sizes would range in size from [X] acres to [X]X acres. In the larger units with longer distances-to-cover, some forage (about [X]X acres in Alternative X; [X]X acres in Alternative X) may not be fully utilized by big game, and use could be reduced until vegetation provides cover in the future, up to 15 years. This loss in forage availability would be a short-term negative impact to individual animals (elk, deer, or moose). The resulting distribution and availability of summer/winter forage would be adequate/not adequate for the population of white-tailed deer in the PSU. And Why?

Open Road Density

Morgan (1993) reported that roads in habitat used by white-tailed deer during summer-early autumn in northwest Montana did not negatively affect deer distribution and use except immediately adjacent to roads. In contrast to elk, effects of secondary roads on white-tailed deer are not well documented. Because of their secretive nature and smaller home ranges, white-tailed deer may be less subject to functional loss of habitat due to behavioral displacement than elk (Lyon 1979), especially where cover is dense. In contrast, road density, likely increases white-tailed deer vulnerability to hunting season mortality by affecting hunter distribution and deer-hunter encounter rates, and eliminating refugia (Idaho Department of Fish and Game 2004). In mixed hardwood forests of central Alberta, winter deer abundance increased with distance from roads and cut blocks and decreased with distance from small conifer patches (Stelfox et al. 1995). During the summer, deer were found in all stand ages and showed no relationship between distance to roads and cut blocks.

Table [X] shows the MA 12 ORDs during and following alternative implementation, including any proposed road management. Activities in Alternatives [X], [X], and [X] would occur over the next 10 years. The ORDs displayed for “Maximum ORDs During Implementation” are the highest expected based on planned activities, and actual road use may result in lower ORDs, depending on activity timing. Alternative [X] represents the existing condition.

Table [X]. ORDs During and Following Alternative Implementation for MAs 12, 15, 16, 17, and 18.

Alternative	Maximum ORD During Project Implementation MA 12/MAs 15-18	ORD Following Activities
[X] (No Action)		
[X]		
[X]		
[X]		

Alternatives [X], [X], and [X] would be above/below that recommended by the KFP. Alternatives [X] and [X] would have site-specific disturbance/displacement effects in the short-term, and Alternative [X] would have similar but fewer site-specific short-term effects. Alternative [X] would meet/would not meet the KFP desired condition following implementation. ORDs

above/below the desired condition have the potential to make individual animals more/less vulnerable during hunting season. Overall populations are/are not likely to be affected.

Open road densities would/would not change on winter range (MA 10 and 11) as a result of the proposed activities. The resulting increase in ORDs would displace individual animals to areas without road-associated activities.

Movement Areas

The overall ability of big game to move through the landscape would/would not be affected by Alternatives [X], [X], and [X]. Individual animals may have to adjust their localized movement patterns, but no movement barriers would result. Describe any affects to ridgeline and riparian corridors. (Is there any loss of movement corridors resulting from any of the alternatives)? (A project-specific KFP amendment to MA 12 Wildlife and Fish Standard #7 would be implemented for the life of the project for Alternative(s) [X])

Key Habitat Components

No wallows, wet meadows, or bogs would be affected by any of the alternatives.

In summary, the effects of proposed activities on white-tailed deer habitat would result in maintaining/improving/not meeting the recommended cover/forage ratios and open road densities. This would provide/not provide adequate cover and forage and secure habitat for maintaining current populations of vertebrate species requiring general forest habitat. Opening sizes would maintain/exceed desired sizes as recommended resulting in no/some forage being less available. The resulting available forage is adequately/not adequately distributed across the (Insert Name) PSU resulting in no/some effects on individual animals and/or populations. Movement corridors would be maintained/not maintained in most/some areas resulting in no/localized changes in movement patterns of individual animals. Timing of activities would avoid/be timed in such a way to provide secure habitat during the winter use period (December 1 – April 30). Overall, no adverse effects to populations or habitat of white-tailed deer and the general forest species they represent are expected.

Cumulative Effects

The cumulative effects of past and present management activities (including salvage, small sales) as well as large-scale natural events have been incorporated into the description and analysis of existing conditions in the PSU.

A No Action scenario would maintain present populations of big game in the short term. In the long term (more than 25 years), this alternative has the potential to decrease numbers and distribution due to lack of a continued influx of high quality forage assuming no natural recruitment of forage or management-created openings from other ongoing or foreseeable actions.

If applicable: Commercial thinning proposed on [X] acres would open up thermal cover and hiding cover areas. This would/would not result in maintaining adequate hiding/thermal cover on winter range within the PSU.

If applicable: Prescribed burning would have the potential to open up thermal cover and hiding cover areas. This would/would not result in maintaining adequate hiding/thermal cover. Increased levels of forage would/would not be beneficial to white-tailed deer in the areas proposed for burning.

If applicable: Cattle grazing on winter range has the potential to create competition for winter forage habitat for white-tailed deer (Mackie et al. 1998). Adequate winter forage would be provided through the following grazing management strategies

There are no other reasonably foreseeable activities planned (see Table [X]) that would change the magnitude or scope of effects described in the big game analysis.

Regulatory Consistency

All alternatives would meet KFP direction and subsequent recommendations in Summerfield (1991) regarding cover/forage levels in summer and winter range habitat. All action alternatives create forested openings larger than 20 acres thus site specific adjustments in size and shape of units were made. All alternatives would/would not maintain ORDs at or below standards identified in the KFP for MA 12 (less than 0.75 mi/sq.mi.) and MA 15/16/17/18 (less than 3.0 mi/sq.mi.). New harvest openings would maintain alternative movement areas around previously harvested openings that have not recovered hiding cover status.

White-tailed deer and other ungulate populations are managed by Montana Fish, Wildlife, and Parks. Proposed actions would not prevent the State from continuing to manage these species as harvestable populations.

Summary General Forest MIS Statement

Based on the analysis for white-tailed deer and the other general forest habitat indicators and the KNF Conservation Plan (Johnson 2004), habitat for general forest species should provide sufficient quality and quantity of the diverse age classes of vegetation needed for viable populations. Since sufficient general forest habitat is available, the populations of species using that habitat should remain viable.

Mountain Goat [include/delete as appropriate] (see MIS Table)

Methods and Analysis Area

Mountain goat ecology, biology, habitat use, status and conservation are described and summarized in Joslin (1980) and Brandborg (1955) [X]. That information is incorporated by reference. Mountain goat occurrence data comes from District wildlife observation records and Forest historical data (NRIS FAUNA) and other agencies (MFWP).

The analysis boundary for project impacts to individuals and their habitat is the [insert name] planning sub-unit. The boundary for cumulative effects and determining trend or viability is the MFWP Mountain Goat hunting district (# [X]).

Affected Environment

Alpine habitat is/is not found in the [X] planning sub-unit. There are about [X] acres of the alpine habitat component in this area. Wildlife observation records show mountain goats are/are not known to use the suitable habitat in this sub-unit. Montana Fish, Wildlife and Parks records for the Mountain Goat hunting district (#[X]), that overlaps the planning sub-unit, indicate a population that is stable/increasing/decreasing.

Environmental Consequences

Direct and Indirect Effects

Project design includes time restrictions on activities that occur near kidding areas during that season (5/15 thru 6/30). There are no project activities near breeding areas during the breeding season (10/15 thru 12/15). The project **would/would not** impact suitable mountain goat habitat. With the timing design the project should have no adverse impact on the mountain goat.

Cumulative Effects

Since there are no direct or indirect impacts, the project would not contribute any additional cumulative impacts.

Regulatory Consistency

The project is consistent with Forest-wide Plan direction on Management Indicator species (FP pg. II-1 # 3 and 7) and big game species (FP pg. II-2 #12). The project does not conflict with other Plan direction that provides habitat conditions for Mountain goats (Johnson 2004).

Summary Alpine Forest MIS Statement

Based on the analysis for mountain goat and the KNF Conservation Plan (Johnson 2004), habitat for alpine forest species should provide sufficient quality and quantity of the diverse age classes of vegetation needed for viable populations. Since sufficient alpine forest habitat is available, the populations of species using that habitat should remain viable.

Pileated Woodpecker

Methods and Analysis Area

Pileated woodpecker (PWP) population ecology, biology, habitat description and relationships identified by research for the northern Rocky Mountains are described in McClelland and McClelland (1999), McClelland (1979, 1977), McClelland et al. (1979), and Warren (1990). This information is incorporated by reference.

Research conducted in the Pacific and Inland Northwest is described in Bull and Jackson (1995), Bull and Holthausen (1993), Bull et al. (1992b), Bull (1987, 1980, 1975), Bull and Meslow (1977), Mellen et al. (1992), Mellen (1987), Thomas (1979), Mannan (1977), and Jackman (1974).

Pileated woodpecker occurrence data comes from recent District wildlife observation records, the Region One Landbird Monitoring Program (Avian Science Center, Univ. of Montana), and Forest historical data (NRIS FAUNA). The pileated woodpecker is the indicator species for old growth and snag habitat on the Kootenai National Forest. Habitat for this species was modeled using all designated and undesignated old growth habitat and old growth replacement habitat, which has currently been mapped for the Kootenai National Forest.

Effects Indicators

The potential population index (PPI) for PWPs on the Kootenai National Forest has been calculated by Johnson (2003). The procedure is based on the assumption that all currently mapped effective and replacement old growth habitat (both designated and undesignated) is

providing suitable habitat to support nesting territories. This assumption also includes the premise that all suitable habitat is spatially distributed across the landscape in a pattern that can be incorporated into individual nesting territories. The procedure was based on territory sizes of pileated woodpeckers as described in research by McClelland (1977) for northwest Montana, and Thomas (1979) and Bull and Holthausen (1993) for northeast Oregon. For the PPI analysis on the Kootenai National Forest (Johnson 2003b), replacement old growth habitat was defined as habitat that had some old growth characteristics, but did not meet the KFP (USFS 1987) definition of old growth, or the definition found in Green et al. (1992).

Effective old growth habitat was modeled as supporting one nesting pair per 600 acres, with replacement old growth habitat supporting one nesting pair per 1000 acres. The difference in territory size is based on research that suggests that higher quality habitat can support a breeding pair with fewer acres (McClelland 1977; Bull and Holthausen 1993). Also, allowing for larger territory sizes when habitat becomes fragmented appears reasonable, as territory sizes up to 2,600 acres have been reported for western Oregon (Mellen et al. 1992). Of course, there are numerous and complex interrelated factors that influence the actual size of the home range territory (McClelland 1977).

Project impacts are evaluated based on impacts to important attributes of pileated woodpecker habitat, primarily impacts to designated and undesignated old growth habitat. Specific features of old growth stands evaluated for project impacts include preferred nest tree species, preferred nest tree size, down logs (both size and quantity), basal area (BA), and canopy closure (CC).

The overall assessment of habitat quality also accounts for potential negative factors discussed in the old growth habitat analysis that relate to size and connectivity, and include fragmentation, edge effect, and lack of interior habitat. Risk to firewood cutting is also evaluated. Other stands (not designated as old growth) may have one or more important attributes of old growth forests, or perhaps provide for connectivity and interior habitat. These stands were also reviewed as part of this analysis.

[Note: If the project biologist chooses to delineate potential nesting territories, then the following can be included].

Potential home range territories of PWP's were delineated in order to model a viable home range that spatially met the needs of a nesting pair. Territories were delineated after reviewing the quality, stand size, and spatial arrangement of all available old growth habitat.

For the [insert name] PSU, mapped territory size ranged from x to x acres depending on the quality of habitat available. Isolated stands within 0.5 mile of the territory perimeter were considered as part of the territory, if they did not reasonable fit within the boundary of another mapped territory.

[Note: to biologist if a circular territory is being delineated: A 600 acre circular territory has a radius of 2,885 ft., while a 1,000 acre circular territory has a radius of 3,725 ft. If the radius of a 600 acre territory is increased by 0.5 mile, then the territory size increases to 2,200 acres; if the radius of a 1,000 acre circular territory is increased by 0.5 mile, then the territory size increases to 2,920 acres].

The analysis boundary for project impacts to individuals and their habitat is the [insert name] planning sub-unit. The boundary for cumulative effects and determining trend or viability is the Kootenai National Forest.

Affected Environment

The modeled minimum PPI for the pileated woodpecker on the Kootenai National Forest is 425 nesting or breeding pairs (Johnson 2003). This is within the calculated historical range of variation (HRV) for the minimum potential population index of 335 to 554 breeding pairs (Johnson 1999).

A detailed summary of old growth habitat for the [insert name] planning sub-unit is displayed in the Old Growth section of this document. This summary indicates that approximately [X] acres of effective old growth habitat (both designated and undesignated), and about [X] acres of replacement habitat (both designated and undesignated) exist within the PSU. Existing pileated woodpecker nesting territories would likely encompass a significant portion of this old growth habitat. Based solely on the quantity of old growth habitat available, the [insert name] planning sub-unit could support about [X] nesting territories (PPI).

[Include if territories are being delineated, and delete last sentence in previous paragraph]:

Old growth habitat is spatially distributed throughout the compartments to provide for (insert #) pileated woodpecker nesting territories (PPI). This figure assumes a core nesting area of at least 50-100 acres (McClelland 1977; Bull et al. 1980; Warren 1990), and no overlap in core nesting territories.

No population data is available for pileated woodpeckers within the Kootenai National Forest. Breeding bird point count surveys have been conducted on the Kootenai Forest since 1994. In this program, transects consisting of multiple bird monitoring points are set up within a wide range of habitats distributed geographically across the Kootenai National Forest. This survey technique is not specifically designed to census woodpecker species, although all migratory and resident bird species detected by specialists trained in bird identification are recorded at each point on each transect. The rate of detection can vary greatly from year to year, especially for a wide-ranging species like the pileated woodpecker, that may or may not be anywhere near a given point on a given day. During the 1994-2004 periods, the pileated woodpecker was tallied 204 times at the 2,638 individual points surveyed (USFS 2003).

There are (insert #)/no known PWP nest cavities in the [X] PSU.

Environmental Consequences

Alternative 1(No Action)

Under Alternative [X] (No Action), natural successional processes would continue to occur throughout existing old growth stands, and stands containing old growth attributes used by pileated woodpeckers. Habitat would be provided for PWP nesting pairs that find suitable feeding and breeding conditions provided by the structural features and overall environment within these stands. There would be no change in PPI (see **Error! Reference source not found.** below).

[Note: Include for territory delineation].

None (or state actual number) of the potential [X] pileated woodpecker nesting territories would be impacted by management activities. In relation to stand size and connectivity, conditions currently appear adequate to meet the behavioral and biological needs of the pileated woodpecker in -- of the potential nesting territories. Conversely, in -- of the potential nesting territories, current stand size, habitat quality, and connectivity appear marginal in providing the necessary components for territory occupation.

Replacement old growth habitat currently provides less suitable stand conditions for territory occupation. Over the next several decades, in the absence of catastrophic fires or windstorms, these stands would develop better habitat features for pileated woodpeckers such as larger trees, larger snags, and more down logs. Also, higher levels of decadence would develop producing better substrate for food resources such as carpenter ants and their larvae, one of the primary prey items for pileated woodpeckers in the Northern Rockies (McClelland and McClelland 1999, 1977) and in the Pacific and Inland Northwest (Bull et al. 1992a; Bull 1987, 1975; Bull et al. 1980).

Under Alternative [X], no active management is expected within effective or replacement old growth habitat, with the exception of fire suppression activities. Continued disruption of the historical pattern of frequent fires in the drier ponderosa pine/Douglas-fir cover type would continue to result in ecological changes, such as the encroachment of Douglas-fir saplings in the understory. Eventually, these sites would develop a higher percentage of Douglas-fir trees, snags, and down logs more suitable as foraging habitat for pileated woodpeckers.

Over the next several decades, this successional trend may result in a reduction in quality PWP nest trees (ponderosa pine), since Douglas-fir was not found to be important for pileated woodpecker nest cavity excavation in the northern Rocky Mountains (McClelland and McClelland 1999, 1977; Weydemeyer and Weydemeyer 1928), in northeast Oregon (Bull 1987, 1975; Thomas 1979), or in British Columbia (Harestad and Keisker 1989).

Under this alternative, the impact of the existing road system on snags, an important attribute of the pileated woodpecker territory, would remain as described under the analysis for snags and old growth habitat. The effects of edge on pileated woodpecker habitat from adjacent regeneration units would also remain as described under the old growth analysis.

Effects of the Action Alternatives

Impacts to old growth habitat are disclosed in the old growth section. These effects translate to potential impacts to the pileated woodpecker as loss of nesting and foraging habitat or reduced habitat quality.

Habitat impacts from all action alternatives include the loss of about [X] to [X] acres of undesignated replacement old growth, along with an increased edge effect resulting from [X] to [X] proposed harvest units, depending on alternative (see Table [X] in the old growth section).

Road construction ([X]feet/miles) in Alternatives [X] and [X] would occur adjacent to designated old growth areas. This activity is expected to increase the risk of snag loss within old growth due to firewood cutting. Alternative [X]x would not result in road construction adjacent to or through designated old growth.

[Step #2 - (Focus on the individual stands being treated). Reference Table 1, Attachment 1 found in Castaneda (2004). Suitable Habitat for Wildlife Associated with Old Growth on the Kootenai National Forest].

Discuss the impact to the individual stand(s) being treated, in relation to the preferred habitat conditions listed in the table (last three columns). Will the treated stands still maintain suitable habitat conditions for basal area (BA), canopy closure (CC), tree species, and the other important characteristics listed in the table.

Other items to consider include: loss of live trees, live culls, or snags greater than 15" dbh; loss of down logs greater than 10" dbh; and any impact to riparian old growth corridors [McClelland (1979) and McClelland et al. (1979) provide a general guideline (300 feet in width) for riparian old growth in the northern Rocky Mountains within pileated woodpecker nesting territories].

[Note: If territory delineation has occurred, then also discuss any other impacts to potential nesting territories, such as loss of connectivity due to harvest of other stands not currently delineated as old growth].

Based on the expected impacts to old growth acres (see Table [X] in the old growth section) the PPI **could/ is not expected** to change as seen in .Table [X].

Table [X]. Potential Population Index by Alternative

Analysis Area	Existing PPI	Alternatives				
		[X] (No Action)	[X]	[X]	[X]	[X]
[X] PSU						
Forest-wide						

[X] Changes at the Forest level shown under the No Action Alternative are due to reasonably foreseeable actions.

Project activities (e.g. falling and yarding) are likely to cause PWPs to, at least temporarily, move away from the disturbed areas.

Cumulative Effects

The No Action Alternative would not contribute any cumulative effects. The Forest-wide PPI (see table x above) reflects cumulative changes from each alternative and all past, present and reasonably foreseeable actions.

Regulatory Consistency

KFP

- All alternatives **are/are not** consistent with KFP direction for old growth (see old growth section)
- All alternatives **are/are not** consistent with KFP direction for snags and down wood (see snag and down wood section)
- All alternatives **are/are not** consistent with KFP direction to maintain diverse age classes of vegetation for viable populations (FP II-1 #7).

Summary Old Growth, Snag And Down Wood Habitat MIS Statement

Based on the analysis for pileated woodpecker, old growth, and snags and down wood, and the KNF Conservation Plan (Johnson 2004), habitat for old growth forest species and cavity habitat users should be provided in sufficient quality and quantity to meet the needs for viable populations. Since sufficient old growth forest, and snag and down wood habitat is available, the populations of species using that habitat should remain viable.

[Partial E[X]AMPLE from the COW CREEK TIMBER SALE without territory delineation].

Effects of the Action Alternatives:

Connectivity of forested stands would be greatly reduced under all action alternatives. The removal of forested habitat with high canopy closure within a potential nesting territory would reduce interior habitat and potential feeding sites. Alternative 2 creates openings (shelterwood and/or seed tree harvest) and eliminates dense forested canopy on 608 acres (11 units); Alternative 3 results in a loss of 480 acres of forested habitat (18 units); Alternative 4 results in a loss of 659 acres of forested habitat (23 units); and Alternative 5 results in a loss of 662 acres of forested habitat (24 units).

This reduction would mostly occur in stands with smaller diameter trees not currently mapped as old growth or replacement habitat. The only exceptions occurs under Alternative 2 (Unit U), where a 5 acre stand of undesignated replacement old growth is proposed for shelterwood harvest; and also under Alternatives 3, 4, and 5 (Units U and M2) where 10 total acres of undesignated replacement habitat are proposed for shelterwood harvest. The harvested portion of both stands would not maintain preferred habitat conditions for basal area or canopy closure for pileated woodpeckers as described by Johnson (2003).

The loss of general forested habitat would continue to fragment potential pileated territories within the drainage. Loss of connectivity and interior habitat would be greatest in low elevation areas within the Cow Creek drainage. The western portion of the Cow Creek drainage may have the greatest potential to support a nesting territory for pileated woodpeckers due to the presence of several hundred acres of general forested habitat, which lies adjacent to delineated old growth (effective and replacement) habitat.

As part of the Cow Creek Timber Sale, an additional 566 acres of undesignated effective old growth would become designated effective old growth within the Riverview planning subunit. This action would provide greater long-term emphasis for maintaining the desired old growth attributes of these stands.

Cumulative Effects

The proposed federal Alder Creek Timber Sale, within the Riverview planning sub-unit, is planned about six miles north of the Cow Creek Timber Sale. Negative effects would occur due to increased edge from 4-5 proposed harvest units adjacent to old growth. Less than 5 acres of an undesignated replacement old growth (stand # 693671) is proposed for seed tree harvest. The harvested portion of this stand would not maintain preferred habitat conditions for basal area or canopy closure for pileated woodpeckers.

Statement of Findings

The proposed project and associated cumulative effects are not expected to change (either increase or decrease) the potential population index for pileated woodpeckers on the Kootenai National Forest as a result of impacts to old growth habitat. However, several hundred acres of general forested habitat (younger age classes) within the Cow Creek drainage currently lie within potential nesting territories. Continued fragmentation of this habitat would reduce secure foraging habitat, and may reduce habitat effectiveness for several decades.

Although adverse effects to some attributes of old growth habitat is expected within the Riverview planning subunit, potential nesting territories of individual birds are not expected to be rendered ineffective for nesting as a result of management activities on federal land.

Sensitive Species

Regulatory Framework

The sensitive species analysis in this document meets the requirements for a biological evaluation as outlined in FSM 2672.42.

Sensitive species are administratively designated by the Regional Forester (FSM 2670.5) and managed under the authority of the National Forest Management Act. FSM 2670.22 requires the maintenance of viable populations of native and desired non-native species and to avoid actions that may cause a species to become threatened or endangered.

The National Forest Management Act (NFMA) (36 CFR 219.19) directs the Forest Service to manage habitat to maintain viable populations of existing native and desired non-native vertebrate species. A viable population is defined as one that has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area, the Kootenai National Forest.

The Kootenai National Forest Land and Resource Management Plan (1987) establishes forest-wide goals, objectives, standards, guidelines, and monitoring requirements. Direction for sensitive species includes determining the status of sensitive species and providing for their environmental needs as necessary to prevent them from becoming endangered (FP II-1). The FP also requires the maintenance of diverse age classes of vegetation for viable populations of all existing native, vertebrate wildlife species (FP II-1).

Table [X]. Sensitive Wildlife Species on the Kootenai National Forest (Kimbell 2004, 2005 [Use current Sensitive Species List Author and date])

Sensitive Species	Status In Analysis Area [X]	Comments[X] [X]
Black Backed Woodpecker (<i>Picoides arcticus</i>)	S/K/NS	
Coeur d'Alene Salamander (<i>Plethodon vandykei idahoensis</i>)	S/K/NS	
Common loon (<i>Gavia immer</i>)	S/K/NS	
Fisher (<i>Martes pinnanti</i>)	S/K/NS	
Flammulated Owl	S/K/NS	

Sensitive Species	Status In Analysis Area [X]	Comments[X] [X]
(<i>Otus flammeolus</i>)		
Harlequin Duck (<i>Histrionicus histrionicus</i>)	S/K/NS	
Northern Bog Lemming (<i>Synaptomys borealis</i>)	S/K/NS	
Northern Goshawk (<i>Accipiter gentiles</i>)	S/K/NS	
Northern Leopard Frog (<i>Rana pipiens</i>)	S/K/NS	
Peregrine Falcon (<i>Falco peregrinus</i>)	S/K/NS	
Townsend's Big-eared Bat (<i>Corynorhinus townsendii</i>)	S/K/NS	
Western Toad (<i>Bufo boreas</i>)	S/K/NS	
Wolverine (<i>Gulo gulo</i>)	S/K/NS	

[X] Status Key:

K = This species is known to occur within the project area.

S = Species is suspected to occur within project area.

NS = Species is not suspected to occur within the project area, and is dropped from further evaluation.

[X][X] Select All That Apply

1 = Suitable habitat does not occur in the analysis area

2 =

3 =

Note: If species shown as NS in above table then DO NOT include in write-up below!

Black-backed Woodpecker

Methods and Analysis Area

Black-backed woodpecker population ecology, biology, habitat description and relationships identified by research are described in Powell (2000), Cherry (1997), Hutto (1995), and O'Connor and Hillis (2001). That information is incorporated by reference. Black-backed occurrence data comes from recent District wildlife observation records and Forest historical data (NRIS FAUNA). Black-backed woodpecker habitat was modeled using [state what veg source i.e. CEM, Available Snag Habitat, TSMRS] vegetation data and running the Kootenai [state what model used i.e. CEM, TSMRS] black-backed woodpecker habitat model [citation for model] (see project file). The potential population index (PPI) (number of potential territories) was calculated for a breeding pair by dividing general forest habitat acres by 800 acres (approximate largest home range) and by dividing high quality habitat acres by 175 acres (approximate smallest home range; Johnson et al. 2004: Appendix G). The difference in territory size used in the two habitat components is based on the assumption that higher quality habitat can support a breeding pair with fewer acres. High quality habitat is defined as recent (less than [X] years old) mixed-lethal or stand-replacement fire areas where an abundance of snags are available. Black-backed

woodpeckers have been found to be almost restricted to early post-fire forests (Hutto 1995). Territory sizes are from the summary paper by Cherry (1998). The analysis boundary for project impacts and cumulative effects to individuals and their habitat is the [insert name] planning sub-unit. The boundary for determining trend or viability is the Kootenai National Forest.

Affected Environment

Habitat for black-backed woodpeckers consists of boreal and montane forest where beetle outbreaks are occurring as a result of disturbances caused by fire, wind, and disease. In the Planning sub-unit black-backed woodpecker habitat consists mainly of lower quality general forest habitat with small scattered patches of snags produced by insect and disease. This lower quality habitat supports low populations of resident black-backed woodpeckers. The Kootenai [state what model used i.e. CEM, Available Snag Habitat, TSMRS] black-backed woodpecker habitat model [citation for model] identified [X] [X] acres of general forest habitat. High quality habitat in the form of recent (in the last 10 years) mixed lethal and stand-replacing wildfire or prescribed fire consists of [X] [X] acres in the Planning sub-unit. The available general forest and high quality habitat combined would produce a PPI of [X] pairs.

As a primary cavity-nester, black-backed woodpeckers require dead or live trees with heartwood rot and show a preference for Douglas fir, ponderosa pine, lodgepole pine, and western larch. According to Thomas (1979, p. 74), a snag level of 40 percent or more should maintain viable populations of birds dependent on cavities for nest sites. The existing snag habitat level for the Planning Area is [X] percent.

On a Forest-wide level, modeled black-backed woodpecker habitat is abundant, broadly distributed and amounts to 1,317,790 acres of general forest habitat. Recent (past [X] years) sightings of the black-backed woodpecker occurred in (cite observations).

Environmental Consequences

Proposed activities for Alternatives [X], [X], and [X] have the potential to remove or reduce general forest foraging opportunities, and at the same time, create foraging habitat during post-harvest burning activities. Regeneration harvest would remove general opportunities, leaving a minimum number of wildlife trees available for foraging. Regeneration harvest almost always includes under burning, and with heavier slash, has potential to kill trees left on site. Overall, a larger amount of low-quality habitat would be replaced with a smaller amount of higher-quality habitat. Commercial thinning would leave a number of trees on site for general foraging opportunities. Under burning in these stands would create more potential for black-backed woodpecker foraging habitat than regeneration harvest. Commercial thinning with under burning and stands with under burning-only would be most similar to historical conditions created by mixed-severity fires, and could provide high quality black-backed habitat for 2-3 years, then declining and rarely providing insect food sources beyond 5-7 years (Caton 1996, Murphy and Lehnhausen 1998).

Table [X]. Change in Black-backed Woodpecker Habitat and PPI by Alternative

Habitat Change in Acres (% Change)	Existing	Alternatives			
		[X] (No Action)	[X]	[X]	[X]
Change in Habitat Quality Due to underburning and/or thinning					
Change in General Forest Foraging Habitat					
Change in High Quality Habitat					
PPI – Pair Territories in Project Area					
Reduction in General Forest Habitat Forest-wide					
PPI – Pair Territories Forest-wide					

Direct and Indirect Effects

Effects of Alternative 1 (No Action)

Alternative [X] would maintain/allow the natural insect/disease processes to occur. General forest conditions for foraging opportunities would remain low quality. The potential for stand-replacing fires escaping initial attack would continue to increase as fuel levels increased. If a wildfire were to occur, prime black-backed woodpecker habitat would be created, and conditions would benefit this species. Local populations would experience an immediate increase as bark beetles increased, lasting five to seven years, until beetle populations declined.

Effects of Action Alternatives

Alternatives [X], [X], and [X] would create forest openings with regeneration harvest on [X] to [X] percent of the black-backed woodpecker habitat in the Project Area, which would reduce general use but would also create some good forage trees following underburning, especially in the commercially thinned areas. Habitat reductions in high quality habitat would/would not result following implementation of any of these alternatives. A minimum of [X] percent of general forest habitat and [X] percent of high quality habitat would remain following implementation of all Action Alternatives. All alternatives would provide additional foraging trees on areas with commercial thinning and/or underburning on up to [X] percent of the black-backed woodpecker habitat in the Project Area. On a Forest-wide level, the reduction in general foraging habitat would amount to less than [X] percent under Alternative [X], and even less under Alternatives [X] and [X]. No/minor effects on distribution of habitat needed for viable populations of black-backed woodpeckers in the Project Area or the Forest would occur because proposed activities would result in a small net loss of low quality habitat scattered throughout the Project Area and there would be no/minor loss in high quality habitat. In addition, the thinning and under burning treatments would provide additional foraging trees. The resulting change in PPI for the Project Area and Forest-wide is +/- [X] and [X] pairs, respectively.

Cumulative Effects

The cumulative effects of past and present land uses and natural random events have been incorporated into the analysis of current habitat within the project area. The existing situation provides adequate available habitat for black-backed woodpeckers based on the availability of potential territories that are of adequate size and even distribution (compare to reference conditions), and available snag habitat of [X] percent which is above the minimum needed of 40 percent.

Normal road and trail maintenance activities have the potential to remove nesting and foraging trees if they are close to a trail or road and present a safety hazard. Effects would include removing site-specific, individual trees, and would not be expected to adversely affect black-backed woodpeckers.

Firewood cutting would remove snags and would reduce nesting and foraging habitat availability along open roads. The decrease in habitat would be limited to areas within about 150-200 feet of open roads. This loss of snag habitat was accounted for in the analysis of available snag habitat. Overall in the Planning Area, [X] percent snag habitat level would be available following the past, present, and foreseeable actions. This snag habitat level would maintain minimum viable population levels of cavity nesting birds, including the black-backed woodpecker; no adverse cumulative effects are expected.

Other agency and public actions identified in Table [X] (description of ongoing and foreseeable actions) would have little to no effect on black-backed woodpeckers or their habitat because no change in this woodpecker's habitat would result from ongoing and foreseeable actions. No adverse cumulative effects from these types of activities would be expected.

Regulatory Consistency

KFP

- All alternatives would meet/would not meet KFP direction for sensitive species (FP Vol. 1, II-1 #6).
- All alternatives are consistent with KFP direction for old growth below 5,500 feet (FP Vol. 1 II-1 #7; II-7; II-22 and 23; Appendix 17; and Kootenai FSM 2432.22 Supplement No. 85).

National Forest Management Act

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the black-backed woodpecker. This determination is based on: 1) [summarize rationale for determination]

Coeur D'Alene Salamander

Methods and Analysis Area

Coeur d'Alene salamander population ecology, biology, habitat description and relationships identified by research are described in Cassirer et al. (1994) and Maxell (2000: 68-73). That information is incorporated by reference. Coeur d'Alene salamander occurrence data comes from recent District wildlife observation records and Forest historical data (NRIS FAUNA) and other agencies (MFWP). The analysis boundary for project impacts to individuals and their habitat is the [insert name] planning sub-unit. The boundary for cumulative effects and determining trend or viability is the Kootenai National Forest.

Affected Environment

District and Forest Coeur d'Alene salamander observation and monitoring data indicates that [state summary of observation data for project area]. Johnson (1999) shows Coeur d'Alene salamander presence confirmed in four of the eight planning units on the Kootenai at 13 different sites. They have been confirmed in two additional planning units since 1999 and the known sites now total 36. Known populations on the KNF are isolated by miles of unsuitable habitat that can not be crossed (based on Maxell 2000: 69 and Maxell et al. 2003: 40).

Environmental Consequences

Table [X] summarizes the changes in habitat acres.

Table [X]. Habitat Changes by Alternative

	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Habitat Acres - Planning sub-unit (% change)				
Habitat Acres - Forest-wide (% change)				

Direct and Indirect Effects

Maxell (2000:69) reviews the risk factors relevant to this species. Timber harvest, fire, road and trail development and maintenance, vehicle use on roads, and isolation are the critical factors. Harvest units have been designed with riparian buffers sufficient to protect salamanders and their habitat from adverse effects associated with logging. There are no harvest units in the area of known Coeur d'Alene populations.

All action alternatives contain road management designs that could affect salamanders and their habitat. Some stream crossings are associated with new road construction in most of the alternatives. Additionally, all action alternatives contain watershed restoration work that would remove culverts and reshape stream banks in a number of locations. Culvert installation or removal could result in incidental mortality if salamanders were present. Although there is a low risk that individuals could be impacted, it would have minimal effect on the overall population

and thus not be expected to affect the continued viability of the Coeur d’Alene salamander within the project area.

Cumulative Effects

All action alternatives have the potential to affect downstream riparian habitat. Peak flow increases would be maintained within standards thus preventing adverse water quality changes or physical changes in channel morphology. For further discussion on water quality read the sections on fisheries and water resources. There should be no adverse cumulative effects on the Coeur d’Alene salamander population on the Kootenai National Forest from any foreseeable activities within the project area.

Regulatory Consistency

KFP

- All alternatives **would meet/would not** meet KFP direction for sensitive species (FP Vol. 1, II-1 #6).
- All alternatives **are/are not** consistent with KFP riparian standards and guidelines (FP Vol. 1 II-28 thru 33) as amended by INFS.

National Forest Management Act

Statement of Findings

The proposed action **[select appropriate determination statement]** (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the Coeur d’Alene salamander. This determination is based on: 1) **[summarize rationale for determination]**

Common Loon

Methods and Analysis Area

The current status and distribution of Common Loons in Western Montana can be found in the **Third Annual Common Loon Report (2002-2004) (MFWP 2005) and the USFWS Conservation Plan (Evars 2004)**. Skaar 1989 and Dolan 1994 establish interim goals and strategies for maintaining nesting habitat and stable population levels and also describe the ecology, biology, habitat use, status and conservation of the common loon. Data from these documents are incorporated by reference.

Measurement Indicators Used To Assess Affects On Loons Are:

- Maintenance of suitable nesting/rearing habitat
- Potential for human-related disturbance during the pre-fledging period.

This analysis was based on loon monitoring conducted over the past 5 to 10 years regarding loon occupancy, nesting success, and habitat maintenance (monitoring data located in district files).

The analysis area boundaries for direct effects to loons and their habitat are the shorelines within 500 feet of nesting loons (Dolan 1994) as well as the waters of (insert name) Lake(s). Any direct effects to loons and their habitat would be limited to these lakes and their lakeshores. The boundary for analysis of indirect and cumulative effects would be the (insert name) Planning sub-unit.

Affected Environment

Loons have been observed in all eight planning units on the Kootenai National Forest (Johnson 1999). Johnson (1999) summarizes available loon habitat across the Kootenai National Forest. In western Montana, since the formation of the Common Loon Working Group in 1999, the total number of lakes surveyed has stabilized while the total number of adult loons counted each year has ranged between 150 and 200. Annual variability in adult counts could be attributed to changing population size or possibly to survey conditions or efforts, particularly on large reservoirs and lakes (Bissell 2004). The Montana Loon society (Bissell 2004) loon count data shows the total number of loons in Northwest Montana has remained relatively stable over the last six years. Over the last 5 years this same data shows rather wide fluctuations in the number of chicks produced. Causes for lower production in some years include weather (flooding) and competition among nesting pairs.

(Insert number lakes (insert name(s) of lakes(s) within the (insert name) Planning sub-unit have loon nesting habitat (see Table [X]). Detailed loon occupancy and nesting success records (by lake) are on file at the district office. The lake(s) provide about [X] acres of loon habitat in the PSU.

Table [X]. Loon Habitat and Status in the [X] PSU

Lake	Acres	Territory Type ¹	Years Loons Present	Last Reproduction Year

¹A: current nesting territory (active in last 4 years); B: potential nesting territory (old, >4 years, nest records exist or occupied by pair in last 4 years); C: Potential nesting territory (currently unoccupied or occupied by single birds or has no past nest records); D: Lake determined not to include potential nesting territory but may serve as forage habitat; E: Lake status undetermined

Factors affecting loons and loon nesting on this/these lake(s) include (describe activities, examples include but not limited to a fluctuating shoreline, poor shoreline vegetation cover. These existing activities do/do not seem to affect loon nesting attempts on this/these lake(s).

Potential for Human Related Disturbances: Developments along the lakeshore do/do not occur. or and consist of a boat access site, campground, etc. [insert developments found]. Private residences (are/are not) found to on the lake. Boating, fishing, water skiing, and jet skiing are popular activities on the lake (describe activities that may affect loons).

Environmental Consequences

Shoreline human-related disturbances within 500 feet of a known loon nest during the most sensitive part of the breeding/nesting season (April 15 to July 15) could prevent or disrupt loon

nesting (Dolan 1994). Human-related disturbance includes causing loons to flush from the nest by approaching too close and creating boat wakes that result in flooding the nest. Disturbances could include trails or trail construction or maintenance, road construction, re-construction and maintenance, timber harvest, burning, recreational activities or other human-related disturbances. A no-disturbance zone between 50-150 feet from the nest, depending on size and shape of the lake, would be created to close the area to human access (boats, jet skis, swimming, etc.) during the breeding/nesting season (from April 15 to July 15) (Roderick and Milner 1991; Dolan 1994).

Direct and Indirect Effects

The No Action Alternative would not alter any habitat suitable for the loon and would have no impact on loons or their habitat. Existing habitat would continue to be available on the Forest Service portions of the shorelines. Portions of the lake adjacent to private land could be developed or promote activities that could impact individual loons or their habitat on this lake. The No Action Alternative would not change the current level of recreation activities that may affect loons and loon nesting.

Effects of Action Alternatives

The proposed activities would not affect the suitable nesting habitat. Proposed activities would/would not occur inside the 150 foot no disturbance water zone. Proposed activities along the shoreline would/would not occur within 500 feet of the nest. Or However, these proposed activities would be completed outside the time period that loons would be breeding/nesting. The shoreline is protected by a 150 foot riparian INFSH buffer. The proposed activities would have no effect on the maintenance of suitable nesting/rearing habitat or the potential for increasing human-related disturbances. or The proposed activities may prevent or disrupt loon nesting and may affect loon nesting or rearing habitat, resulting in potential loss of individuals.

Cumulative Effects

The cumulative effects of past and present land uses on public and private land as well as natural random events have been incorporated into the analysis of current habitat within the project area.

If applicable: Recreation and development associated with private land have the potential to diminish habitat or cause disturbances to breeding/nesting loons. Based on past and current development and recreation levels in this area, this is/is not expected to impact breeding pairs at this lake.

Regulatory Consistency

KFP

- All alternatives would meet/would not meet KFP direction for sensitive species (FP Vol. 1, II-1 #6).
- All alternatives are/are not consistent with KFP riparian standards and guidelines (FP Vol. 1 II-28 thru 33) as amended by INFS.

National Forest Management Act

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the common loon. This determination is based on: 1) [summarize rationale for determination] Example: Alternatives [X], [X], and [X] is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability for common loons or their habitat at the Forest level because 1) harvest activities would occur outside of the time frame loons are occupying the lake or outside the breeding/nesting period; and 2) proposed activities would result in no increase in human-related disturbances.

Fisher

Methods and Analysis Area

Fisher population ecology, biology, habitat description and relationships identified by research are described in Powell and Zielinski (1994) and Heinemeyer and Jones (1994). That information is incorporated by reference. Fisher occurrence data comes from recent District wildlife observation records and Forest historical data (NRIS FAUNA) and other agencies (MFWP). Fisher habitat was modeled using [state what veg source i.e. CEM, TSMRS] vegetation data and running the Kootenai [state what model used i.e. CEM, TSMRS] fisher habitat model [citation for model] (see project file). The potential population index (PPI) (habitat acres divided by average home range acres) was calculated using 10,000 acres as the average male and 3,700 acres as the average female fisher home range (Powell and Zielinski 1994). The index shows both male and female fisher because their home ranges overlap extensively (Id.). The analysis boundary for project impacts to individuals and their habitat is the [insert name] planning sub-unit. The boundary for cumulative effects and determining trend or viability is the Kootenai National Forest.

Affected Environment

Fisher observation and monitoring data indicates that [state summary of observation data for project area]. Johnson (1999) shows fisher presence confirmed in five of the eight planning units on the Kootenai.

Reudiger (1994) shows the Kootenai National Forest as a primary habitat area for fisher. Modeling fisher habitat identifies [X][X] acres of potential habitat in the [insert name] planning sub-unit. Following the identification process outlined in Reudiger (1994), the [insert name] planning unit (major drainage) is assigned as a primary/secondary fisher conservation area (Johnson 2004b). The [insert name] planning sub-unit (sub-drainage) is determined to be a high/ a moderate/a low/unsuitable as a quality fisher habitat area (Id.).

Based on the average male and female fisher home range sizes and the modeled habitat acres, the potential population index for the [insert name] planning sub-unit is [#] female and [#] male fisher. Using the yearlong (modeled) habitat acres from Johnson (1999), the minimum PPI for the Kootenai National Forest would be 29 male and 80 female fishers.

Environmental Consequences

Table [X] summarizes the changes in habitat acres and PPI due to each alternative.

Table [X]. Habitat and PPI Changes by Alternative

	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Habitat Acres - Planning sub-unit (% change)				
PPI - Project Area (Males/Females)				
Habitat Acres - Forest-wide (% change)	294,531 acres			
PPI - Forest-wide (Males/Females)	29/80			

Direct and Indirect Effects

Each of the action alternatives proposes vegetation management activities that would reduce the amount of fisher habitat in the [insert name] Planning Sub-unit (See Table [X] for acres by Alternative). While research does not show fisher to be highly sensitive to human activity, the presence of people and machines during project implementation may still displace fishers using the suitable habitat near the proposed units. The displacement would last until the machines are turned off or leave the area and the people are gone. Heinemeyer and Jones (1994) show the most sensitive time for Fisher is the breeding, denning and rearing period (Feb. 15-June 30). Impacts within 200 meters of perennial streams are especially important to avoid (Id.). The project design, for Alternative [X], includes timing constraints that only allow activities from July 1 to February 15 on all units in this zone. This measure should reduce displacement impacts during the most sensitive time for fisher.

Optional: analysis of artificial home ranges. Using the average home range size for male fisher and the modeled habitat map, assumed home range boundaries were delineated (map in project file). Overlaying the proposed action alternatives gives a spatial picture of the potential habitat impacts on individual home ranges, which is not captured in Table [X]. While the overall habitat changes predicted in Alternative(s) [X] might result in a decrease in PPI, the distribution of habitat changes are spread across the landscape and thus the changes are not likely to result in a reduction in PPI for Alternative [X]. With Alternative [X] the changes occur in [X] assumed home range and are/are not likely to reduce the PPI as indicated in Table [X].

Optional: analysis of habitat quality suggestions from Ruediger (1994). Ruediger (1994) provides suggested levels of mature or old growth forest habitat for high quality fisher habitat sub-drainages. Table W-F2 summarizes the changes in the [insert name] sub-drainage based on Ruediger (1994) (see project file).

Table [X]. High Quality Fisher Habitat Changes by Alternative in the Big Sub-drainage

High Quality	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Mature/Old growth stands (65-75%)	[X] ac. ([X]%)	[X] ac ([X]%)	[X] ac ([X]%)	[X]ac ([X]%)
Connectivity between Sub-drainages (50% b of perimeter w/40% crown closure)	[X]% (visual estimate)	[X]% ("")	[X]% ("")	[X]% ("")

The predicted decrease in the amount of mature and old forest habitat and the anticipated reduction in amount of connectivity **would/would not** maintain existing habitat situation ([X] habitat quality: [X]-[X] percent mature/old growth) and **would/would not** move them toward the desired [X] quality condition. Fisher would still be able to use the suitable habitat.

Cumulative Effects

Alternative [X] (No Action) would not contribute to any cumulative effects on fisher or their habitat. The action alternatives, in combination with the baseline conditions and reasonably foreseeable projects (see earlier list) would [X]

Regulatory Consistency

KFP

- All alternatives would meet/would not meet KFP direction for sensitive species (FP Vol. 1, II-1 #6).
- All alternatives are/are not consistent with KFP riparian standards and guidelines (FP Vol. 1 II-28 thru 33) as amended by INFS.
- All alternatives are consistent with KFP direction for old growth below 5,500 feet (FP Vol. 1 II-1 #7; II-7; II-22 and 23; Appendix 17; and Kootenai FSM 2432.22 Supplement No. 85).

National Forest Management Act

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the fisher. This determination is based on: 1) [summarize rationale for determination]

Flammulated Owl

Methods and Analysis Area

Flammulated owl population ecology, biology, habitat description and relationships identified by research are summarized in Hayward and Verner (1994). More recent research on nesting, food habits, home range and territories, and habitat quality conducted in Colorado, Idaho, and Montana is discussed in Linkhart (2001), Linkhart and Reynolds (1997), Linkhart et al. (1998), Powers et al. (1996), Wright (1996), and Wright et al. (1997). That information is incorporated by reference. Flammulated owl occurrence data comes from recent District wildlife observation records and Forest historical data (NRIS FAUNA). Flammulated owl habitat was modeled using [state what veg source i.e. CEM, TSMRS] vegetation data and running the Kootenai [state what model used i.e. CEM, TSMRS] flammulated owl habitat model [citation for model] (see project file).

The Kootenai National Forest “A Conservation Plan: Based on The Kootenai National Forest Land Management Plan (as amended) (Johnson 2004) determines potential population index (number of potential territories) for breeding pairs by dividing habitat acres by 40 acres. Using changes to habitat and resulting potential population index were used to display the effects of alternatives.

The analysis boundary for project impacts and cumulative effects to individuals and their habitat is the [X]insert name[X][X] PSU. The boundary for determining trend or viability is the Kootenai National Forest.

Affected Environment

District flammulated owl observation and monitoring data indicates that that [state summary of observation data . ie. the species occurs within the [X] PSU]. A Kootenai National Forest status summary of the flammulated owl was documented by Johnson (1999 unpublished). The summary shows that potential habitat occurs across all eight planning subunits. Forestwide, there are 237,098 acres of potential habitat (Id.). Field surveys have confirmed flammulated owl presence in six of eight planning units. The population size on the Kootenai National Forest is unknown (Id.). The flammulated owl has been documented to occur in the [X] PSU.

Or Flammulated owl habitat modeling identifies [X][X] acres of potential flammulated owl habitat in the [insert name] PSU.

Or Acreage of potential flammulated owl habitat was modeled on both National Forest System (NFS) lands (Table [X]) and [list private ownership lands eg. Plum Creek Timber Corporation lands] (Table [X]) using the [X]state model used].

Forest-wide acreage is from Johnson (1999). Based on the average flammulated owl pair territory size and the modeled habitat acres, the potential population index for the NFS lands within the [insert name] PSU is [#] flammulated owl pairs. Using the nesting (modeled) habitat acres from Johnson (1999 unpublished); the minimum PPI for the Kootenai National Forest would be 5,927 flammulated owl pair. These estimates of PPI are considered high based on actual survey results.

Flammulated owl surveys, which consist of taped owl calls being used in an attempt to draw a response from nesting birds, have been conducted intermittently within the [insert name] PSU

over the last decade. Surveys in [insert years] found [or did not find] the flammulated owl in the [insert name] Creek drainage [or drainages].

Environmental Consequences

Proposed timber harvest has the potential to impact flammulated owl habitat. Selective logging that removes large ponderosa pine or Douglas-fir trees can decrease the availability of early-season feeding sites, song and roost sites, and trees for snag recruitment in areas already limited in large snag abundance (Wright 1996:77). Snag removal during timber harvest for OSHA safety standards also removes suitable habitat for flammulated owls.

Some research has suggested that flammulated owls are not likely to forage further than 300 feet from forest cover (Goggans 1985). Regeneration harvest creating areas greater than 300 feet from cover would likely receive minimal use. This equates to a harvest unit of about 8 acres in size, or a relatively square unit 600 feet on each side. Those proposed regeneration harvest units that are greater than 8 acres in size would likely receive little or no foraging use until under story and mid-story canopies develop.

Prescribed fires and/or slashing may have short-term (2-3 years) negative effects on the availability of habitat for prey species, but in the long-term habitat for prey species would be maintained and/or increased due to the vigorous shrub/forb layer that would result from the fire. These activities would benefit flammulated owls (Illg and Illg 1995).

Direct and Indirect Effects

Changes in potential flammulated owl habitat caused by the various activities in the proposed project are shown in Table [X].

Table [X]. Acre Changes In Flammulated Owl Habitat on NFSL in the [X] PSU

Activity Type	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Acres unsuitable due to regeneration harvest ¹	0			
Potential acres changed due to improvement harvest	0			
Acres impacted by slash and/or burn	0			

¹Includes acres of all regeneration units greater than 8 acres in size as worse case scenario.

Based on the sum of acres impacted from Table [X], changes in suitable habitat acres and PPI values on NFS lands are displayed in Table [X]. Decreases in habitat quality may be less than displayed as not all harvest acres are regeneration, and slashing and burning activity impacts are short term. However, this table displays a worst-case scenario as if all suitable snags, large diameter trees, and other characteristics of suitable flammulated owl habitat were removed, at least in the short term.

Table [X]. Flammulated Owl Habitat and PPI Changes by Alternative

	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Habitat Acres – [insert name] PSU NFS lands (+/- % change)				
PPI – [X] PSU (# potential territories)				
Habitat Acres – Forestwide – NFS (+/- % Change)				
PPI – Forestwide (# potential territories)				

No activities are proposed under Alternative [X], No Action, so no direct effect to flammulated owls would occur. Plant succession would continue, resulting in an increasing canopy closure and increasing density of under story conifers. This plant succession could have an indirect effect on flammulated owls if they occur in the area since the owls forage in open areas within the drier ponderosa pine and Douglas-fir forest. An increasing density of under story conifers would decrease the available habitat for prey species, and may also impede flight maneuvers needed for foraging (Illg and Illg 1994:58).

Action Alternatives [X], [X], [X], and [X] propose vegetation management activities that would reduce or impact the amount of flammulated owl habitat in the [X] PSU (see Table [X] above for acres by alternative). The changes in the amount of available habitat could result in a PPI change in the [X] PSU (see Table [X] above).

The improvement harvests would follow a basal area reduction prescription (see Table [X] above for acres by alternative). The intention is to favor ponderosa pine and larch by removing smaller Douglas-fir trees that are competing for growing space. These stands are expected to retain the larger and older ponderosa pine and Douglas-fir trees in the over-story while exhibiting a more open under-story. Retaining large trees and snags in the over-story would preserve abandoned flicker and pileated woodpecker cavities, which are the primary nesting sites for flammulated owls. An upper diameter size limit has/or has not been incorporated into the silviculture prescriptions and larger diameter trees may/may not be removed. On those improvement harvests logged with skyline or helicopter, few snags are expected to remain due to OSHA safety standards.

The proposed pre-commercial thinning under Alternative [X], [X], and [X] would not impact existing flammulated owl habitat as it occurs in existing regeneration units that currently are not providing foraging habitat.

The use of hexazinone on [#] units ([X]list units[X][X]) in Alternative [X] does not impact model identified habitat. No other action alternative uses hexazinone.

Or The use of hexazinone on [#] units ([X]list units[X][X]) in Alternative [X] impacts model identified habitat. The interim guidelines (USDA 1992) state that the use of herbicides in natural

openings may reduce forbs and shrubs necessary for prey habitat, and that flammulated owls have been known to forage ½ mile from their nest. Units [insert units] are also located in modeled identified preferred habitat and the use of hexazinone would not benefit habitat for prey species due to the reduction in both amount and diversity of shrubs and forbs. It should be noted that hexazinone would be spot sprayed and the actual acres impacted would be less than analyzed.

Cumulative Effects

Cumulative changes in habitat and PPI levels are displayed in Table [X]. The existing condition includes the results from all past activities. The No Action Alternative includes all reasonably foreseeable projects. Acres from this column were added to the direct effects acres from Table x (above) to determine cumulative effects for the action alternatives.

Use cumulative table only if needed to display other ongoing/proposed activities

Table [X]. Cumulative Habitat and PPI Changes by Alternative in the [X] PSU

	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Habitat Acres – [insert name] PSU NFS/Private and (+/- % change)				
PPI – [insert name] PSU # potential territories NFS/private				
Habitat Acres – Forestwide NFS lands (+/- % Change)				
PPI – Forestwide NFS lands (# potential territories)				

Alternative [X] – includes [list private ownership and # acres] and federal [list and foreseeable federal activities and # acres] timber harvest of habitat

Action alternatives – all alternatives include harvest activities described under Alternative [X] with additional acres of harvested habitat: Alternative [X] [insert acres], Alternative [X] and x (#acres), and Alternative [X] (# acres).

Prescribed fire and/or slashing conducted under the Forestwide Fuels Reduction and Wildlife Habitat Enhancement EA (FFRWHE) are planned in the [X] PSU. These activities may have short-term negative effects on the availability of habitat for prey species, but in the long-term habitat for prey species would be maintained and/or increased due to the re-vigorated shrub/forb layer what would indirectly result from the fire. These activities would benefit flammulated owls (Illg and Illg 1995) as these treatments, which include slashing and burning in drier Douglas-fir/ponderosa pine forests are expected to have a improve foraging flammulated owl habitat (USDA 2001, Chap 3:114-115). The prescribed burning proposed under the reasonably foreseeable [insert name] is expected to have similar effects on flammulated owl habitat.

On [list private land ownership ect... eg. Plum Creek Timber Corporation land] the harvest activities would/would not directly impact flammulated owl habitat with harvest of model

identified suitable habitat. The [insert name of activity] on federal lands would also impact model identified habitat. Please see Table [X] for acreages. Cumulatively, potential habitat could be reduced by timber harvest.

Alternative [X], No Action, when considered in association with the planned activities on both public and private lands, is expected to have no cumulative effects that would impact the flammulated owl because Alternative [X] would not change the current availability of nesting and foraging habitat, potential nesting territories, or increase predation risk. Suitable nesting and foraging habitat would still occur on NFS lands, and sufficient habitat would or would not remain within the [X][X]insert name PSU and Forest-wide to support a number of nesting territories. Cumulatively, the timber harvest activities on public and private lands and the removal of large over-story trees could reduce potential nesting and foraging sites.

Alternatives [X], [X], [X], and [X], when considered in association with the planned activities on both public and private lands are expected to have/have no adverse cumulative effects that would impact the flammulated owl. Potential suitable habitat is distributed across the Kootenai National Forest (Johnson 1999:15-16), and the species is present in five of the eight planning units (Id.). The proposed regeneration harvest would potentially result in the loss of nesting territories. Those acres treated with improvement harvest would retain potential for flammulated owl habitat only in the long-term (100 years) due to the loss of snags from harvest activities. Any slash and burn activities that occur in flammulated owl habitat are expected to be beneficial to flammulated owl habitat. Overall, a decrease in PPI on NFS lands may not occur due to activities that may enhance habitat such as improvement harvest and prescribed burning. As Table [X] displays, sufficient habitat within the [insert name] PSU and across the Kootenai National Forest would remain.

Regulatory Consistency

KFP

- All Alternatives would meet/would not meet KFP direction for sensitive species (FP II-1 #6).
- All alternatives are consistent with KFP direction for old growth below 5,500 feet (FP Vol. 1 II-1 #7; II-7; II-22 and 23; Appendix 17; and Kootenai FSM 2432.22 Supplement No. 85).
- All alternatives would meet/would not meet KFP standards for snags (FP II-1 #8; II-22 and 23; and Appendix 16).

National Forest Management Act

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the flammulated owl. This determination is based on: 1) [summarize rationale for determination]

For example, implementation of Alternative [X], the no action, would have no impact (direct, indirect, or cumulative) on the flammulated owl as no activities are proposed. Cumulatively other

reasonably foreseeable activities on federal land would occur and may affect individuals or their habitat.

Implementation of an action Alternative [X], [X], [X] is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability for the flammulated owl. This determination is based on: 1) displacement could occur during implementation, 2) both model identified foraging and nesting habitat would be impacted, 3) habitat change at the Forest scale is only -1 percent, 4) the potential decrease in PPI may not occur as surveys indicate occupancy level is less than the densities estimated by the PPI, and potential to impact or displace an owl is low, 5) the prescribed burning and improvement harvest may improve potential habitat, and 5) KFP standards related to flammulated owl habitat (old growth) are met.

Harlequin Duck

Harlequin duck population ecology, biology, habitat description and relationships identified by research are described in Cassirer et al. (1996). That information is incorporated by reference. Harlequin duck occurrence data comes from recent Montana Natural Heritage Program surveys, District wildlife observation records and Forest historical data (NRIS FAUNA), and other agencies (MFWP). The analysis boundary for project impacts to individuals and their habitat is the [insert name] planning sub-unit. The boundary for cumulative effects and determining trend or viability is the Kootenai National Forest.

Affected Environment

Harlequin duck observation and monitoring data indicates that [state summary of observation data for project area]. Johnson (1999) shows harlequin duck breeding confirmed on a total of 10 streams in 6 of the 8 planning units on the Kootenai. These streams provide about 71 miles of habitat.

Environmental Consequences

Table [X] summarizes the changes in miles of habitat acres.

Table [X]. Habitat Changes by Alternative

	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Habitat Miles - Planning sub-unit (% change)				
Habitat Miles - Forest-wide (% change)				

Direct and Indirect Effects

No Action Alternative

This alternative maintains the existing condition and no effects to harlequin ducks are expected.

Action Alternatives

Harvest units have been designed with riparian buffers sufficient to protect harlequin duck habitat from adverse effects of logging. All action alternatives contain road management designs that could affect harlequin habitat. Some stream crossings are associated with new road construction in each alternative. Additionally, all action alternatives contain watershed restoration work that would remove culverts and reshape stream banks in a number of locations. These activities have potential to alter vegetation structure (nesting habitat) along creek banks and make them less suitable. Any reduction in habitat suitability due to restoration work would be short-lived and the resulting increased stability of the creek would be beneficial to harlequin ducks.

Cumulative Effects

The cumulative effects of past and present land uses and natural random events have been incorporated into the analysis of current habitat within the project area. No cumulative adverse effects to harlequin duck from implementation of any of the proposed actions have been identified during this analysis.

Reasonably foreseeable actions that would take place within the analysis area include routine road maintenance, firewood gathering, recreational activities, hunting/trapping, etc. These activities would result in some level of local disturbance, but are not anticipated to cause adverse effects to the harlequin duck or its habitat.

Regulatory Consistency

KFP

- All alternatives would meet/would not meet KFP direction for sensitive species (FP II-1 #6).
- All alternatives are/are not consistent with KFP riparian standards and guidelines (FP Vol. 1 II-28 thru 33) as amended by INFS.

National Forest Management Act

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the harlequin duck. This determination is based on: 1) [summarize rationale for determination]

Northern Bog Lemming

Methods and Analysis Area

Northern bog lemming population ecology, biology, habitat description and relationships identified by research are described in Reichel and Beckstrom (1993 and 1994) and Reichel and Corn (1997). That information is incorporated by reference. Bog lemming occurrence data comes

from past District surveys, Forest historical data (NRIS FAUNA) and the Montana Natural Heritage Program. Bog lemming habitat was identified using descriptions in Reichel and Beckstrom (1993 and 1994) (see project file). No potential population index (PPI) was developed because of this lemming's limited distribution and general lack of habitat information. The analysis boundary for project impacts to individuals and their habitat is the [insert name] planning sub-unit. The boundary for cumulative effects is also the planning sub-unit. The area for determining trend or viability is the Kootenai National Forest.

Affected Environment

Northern bog lemmings are typically found in, or very near, thick mats of sphagnum moss in bogs, fens or other wet areas (Reichel and Beckstrom 1993). Northern bog lemmings are not restricted to bogs or similar wetlands, but have been found in other habitats including mossy forests, wet sub-alpine meadows, and alpine tundra (Reichel and Beckstrom 1994, Groves and Yensen 1989). Reichel and Corn (1997) suggest use of habitats other than bogs is rare.

Northern bog lemming observation and survey data indicates that [state summary of observation data for project area]. At most sites where bog lemmings were trapped on the Kootenai and Flathead National Forests, bog birch and/or dwarf willow were present (Reichel and Beckstrom 1994). Suitable habitat is present in the (planning subunit) in at least [X] locations covering about [X] acres. These site have/not been surveyed. Johnson (1999) shows bog lemming presence confirmed in three of the eight planning units on the Kootenai.

Environmental Consequences

Direct and Indirect Effects

The No Action Alternative would not alter any habitat suitable for bog lemmings, and would have no impact on lemmings or their habitat. Existing habitat would continue to be available unless future, unforeseen, management or wildfire events were to alter conditions. A large-scale wildfire could remove vegetation above or adjacent to suitable bog areas, which in turn could alter temperature or water flows to the site. The effects of those changes on bog lemmings are unknown, but a very intense wildfire, which consumed the sphagnum moss layer, could reduce habitat enough to impact individuals on a site-specific basis. Generally, such sites would be too wet to be consumed by fire.

Effects of Action Alternatives

Road construction, re-construction and maintenance, and timber harvest activities if located within 100 meters of suitable sphagnum moss habitat could remove cover, and/or interrupt water flow thus causing drying of sphagnum habitat (Reichel and Beckstrom 1993). These activities could also compact the moss matt (in summer) or snow cover (with lemming tunnels) in winter. This could result in a loss of [X] acres of suitable habitat. Or ... No such activities are proposed near suitable bog lemming habitat. These same activities may result in individual lemming mortality from crushing due to machine operations. Some scattered mossy habitat occurring under spruce/fir cover types may be impacted by harvest activities. Since research indicates that the use of scattered mossy areas is low, then the potential risk of impacts to individuals would be low (Reichel and Beckstrom 1993). Any bogs or fens discovered during unit layout would be put in special treatment areas with restrictions on ground-disturbing equipment (Design Criteria Common to All Action Alternatives, Appendix [X], # [X]). On a forest-wide level, no effects/ [X]

acres of occupied or potential habitat (as identified in Johnson 1999) would occur/be lost as a result of the action alternatives. Loss of suitable or occupied habitat could result in loss of individuals.

Cumulative Effects

The cumulative effects of past and present land uses and natural random events have been incorporated into the analysis of current habitat within the project area. The effects of past harvest activities and grazing have/have not impacted known bog lemming habitat in (insert name(s) area(s). If applicable, describe the change in available habitat.

Identify potential for change in scope and impact of ongoing grazing allotment activities as a result of proposed project activities. Describe planned timber harvest activities that would add to already identified impacts on bog lemmings. There are no other reasonably foreseeable activities planned (see Table [X]) that would change the magnitude or scope of effects described in the northern bog lemming analysis.

Regulatory Consistency

KFP

- All alternatives would meet KFP direction for sensitive species (FP Vol. 1, II-1 #6).
- All alternatives are consistent with KFP riparian standards and guidelines (FP Vol. 1 II-28 thru 33) as amended by INFS.

National Forest Management Act:

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the northern bog lemming. This determination is based on: 1) [summarize rationale for determination] Example: Alternatives [X], [X], and [X] may impact individuals or habitat but would not likely contribute to a trend towards federal listing or cause a loss of viability for bog lemmings or their habitat at the Forest level because 1) harvest activities may impact small, scattered mossy sites under spruce/fir canopies where potential use by bog lemmings would be low; 2) proposed activities would not affect known areas of potential habitat consisting of ponds, wetlands, or bogs; and 3) none of the proposed harvest treatments would change wetland water flows.

Northern Goshawk

Methods and Analysis Area

Goshawk population ecology, biology, habitat description and relationships identified by research are described in McGrath et al. (2003) and Reynolds et al. (1992). That information is incorporated by reference. Goshawk occurrence data comes from recent District wildlife observation records and Forest historical data (NRIS FAUNA). Goshawk habitat was modeled

using [state what vegetation source i.e. CEM, TSMRS] vegetation data and running the Kootenai [state what model used i.e. CEM, TSMRS] goshawk habitat model [citation for model] (see project file). The potential population index (PPI) (habitat acres divided by average territory acres) was calculated using 5,400 acres as the average goshawk pair territory (Reynolds et al. 1992). The analysis boundary for project impacts to individuals and their habitat is the [insert name] planning sub-unit. The boundary for cumulative effects and determining trend or viability is the Kootenai National Forest.

Affected Environment

Goshawk observation and monitoring data indicates that [state summary of observation data for the planning subunit]. Johnson (1999) shows goshawk presence confirmed in all eight planning units on the Kootenai. At the end of 2003, Forest survey records show 37 nest sites, with three sites no longer in use.

Goshawk habitat modeling identifies [X] acres of potential goshawk habitat in the [insert name] planning sub-unit.

Based on the average goshawk pair territory and the modeled habitat acres, the potential population index for the [insert name] planning sub-unit is [X] goshawk pairs. Using the nesting (modeled) habitat acres from Johnson (1999), the minimum PPI for the Kootenai National Forest would be 139 goshawk pair. The most recent data show [34] known or suspected pairs and an additional [10] known individual goshawks on the Forest (KNF goshawk data). (Note see nest records in /fsfiles/office/resources/26_wl-fi_bot/terrestrial/tes/sensitive_spp/goshawk/KNF_goshawknest.xls)

Environmental Consequences

Table [X] summarizes the changes in habitat acres and PPI due to each alternative.

Table [X]. Habitat and PPI Changes by Alternative

	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Habitat Acres - Planning sub-unit (% change)				
PPI - Project Area Pair Territories				
Habitat Acres (Forest-wide) (% change)	752,296 acres			
PPI - Forest-wide Pair Territories	139			

Direct and Indirect Effects

#/None of the known goshawk nest sites is/are impacted by the proposed project.

Cumulative Effects

Regulatory Consistency

KFP

- All alternatives would meet KFP direction for sensitive species (FP Vol. 1, II-1 #6).
- All alternatives are consistent with KFP direction for old growth below 5,500 feet (FP Vol. 1 II-1 #7; II-7; II-22 and 23; Appendix 17; and Kootenai FSM 2432.22 Supplement No. 85).

National Forest Management Act

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the northern goshawk. This determination is based on: 1) [summarize rationale for determination]

Northern Leopard Frog

Methods and Analysis Area

Research (Reichel, J. and D. Flath 1995; Werner, J.K. and J.D. Reichel 1994; Werner, J.K. and J.D. Reichel 1996; Johnson 1999; Maxell 2000; Werner, J.K. et al. 2004) provided guidance in evaluating potential habitat and potential effects to the northern leopard frog. These documents also describe and summarize leopard frog ecology, biology, habitat use, status and conservation. They are incorporated by reference.

The measurement indicator used to evaluate the effects of the proposed actions on the northern leopard frog and their habitat is the level of disturbance to riparian habitat.

The area analyzed for potential effects to the northern leopard frog is all National Forest land within the [insert name] Planning Sub-unit. Analysis of northern leopard frog habitat within this area provides for direct and indirect effects. The boundary for cumulative effects and determining trend or viability is the Kootenai National Forest.

Affected Environment/Existing Condition

Historically this frog was widespread in Montana, but now may be gone from nearly all of the western part of the state (Reichel and Flath 1995 pg. 10). It was known from one active breeding site on the Kootenai National Forest in 1999, although there is historical evidence of this frog at five additional sites (Johnson 1999). Recent surveys indicate major extirpation of populations west of the continental divide (Werner et al. 2004).

Planning area surveys have /not identified the presence of the northern leopard frog. There is/is not potential habitat found in ponds/wetlands within the Planning Area that provide suitable habitat. Riparian habitat around these features are/are not intact and in good condition.

Environmental Consequences

Direct and Indirect Effects

Alternative 1 (No Action)

This alternative would have no direct effect on existing leopard frog habitat because no riparian-altering activities would occur.

During the next 10 years, existing conditions are not expected to change significantly. The exclusion of fire could increase the risk for future stand-replacement fires in riparian areas. Should this occur, some habitat could be made unsuitable for the leopard frog for a short time (until vegetation returns in the riparian area – 2-5 years).

Effects of Action Alternatives

Timber Harvest: Alternative [X] would maintain existing riparian vegetation by following Inland Native Fish Strategy (INFS) direction. The existing large down wood material would be left within the harvest units, through skid trail design and avoidance when possible. This alternative meets KFP standards for retaining snag habitat. This ensures that future down woody material would be available.

Prescribed Burning: Prescribed burns would not be initiated within riparian systems. Occasionally, fire may creep back down into riparian habitat from areas lit higher on the slope. Because of the higher moisture levels within riparian zones, it is expected that very little of the riparian vegetation would burn.

Road Construction: All action alternatives correct existing drainage problems through road reconstruction, rehabilitation of stream crossings, installation of drainage structures and the seeding of disturbed ground. All alternatives propose some road construction as well as road decommissioning. All action alternatives put [X] miles of road into storage and decommission [X] miles. Of these road miles, [X] of them are within the Riparian Habitat Conservation Area (RHCA). In the short term, there would be minor increases in sediment delivery associated with road rehabilitation projects, road construction and reconstruction, and the construction of temporary road. Implementation of all proposed activities would reduce sediment delivery by [X] percent within the Planning Area (see sediment discussion in the aquatic section).

Cumulative Effects

The cumulative effects of past and present land uses on public and private land as well as natural random events have been incorporated into the analysis of existing habitat within the project area. On going federal actions have been considered and included when formulating the existing condition of this planning area. Much of the low elevation habitat within this planning subunit lies on private land. The development of this land has the potential to change habitat for this species. Development in the past 10 years would suggest minimal change in the private land for the next 10 years.

Regulatory Consistency

KFP

- All alternatives would meet/would not meet KFP direction for sensitive species (FP Vol. 1, II-1 #6).
- All alternatives would be/would not be consistent with KFP riparian standards and guidelines (FP Vol. 1 II-28 thru 33) as amended by INFS.
- All alternatives would meet/would not meet KFP standards for snags and down wood (FP II-1 #8; II-22 and 23 and Appendix 16).

National Forest Management Act

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the northern leopard frog. This determination is based on: 1) [summarize rationale for determination] Example: Alternatives [X], [X], and [X] is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability for the leopard frog or their habitat at the Forest level because 1) surveys have not located leopard frogs on the district/planning area 2) proposed activities would not take place within 150 -300 feet of the lake therefore resulting in no increase in sedimentation to the lake 3) large down woody habitat would be maintained .

Peregrine Falcon

Methods and Analysis Area

Peregrine falcon ecology, biology, habitat use, status and conservation are described and summarized in US FWS (1999b 1984) and Rogers and Sumner (2004). That information is incorporated by reference. Peregrine falcon occurrence data comes from District wildlife observation records and Forest historical data (NRIS FAUNA) and other agencies (MNHP).

The analysis boundary for project impacts to individuals and their habitat is the [insert name] planning sub-unit. The boundary for cumulative effects and determining trend or viability is the Kootenai National Forest.

Affected Environment/Existing Condition

As of 2004 there is only one known peregrine falcon nest site on the Kootenai NF (Rogers and Sumner 2004). That site is/is not in the [X] planning sub-unit. Suitable nesting habitat does/not occur in this area. Foraging habitat does not occurs there. Peregrine Falcon observation records indicate the species is/is not known to use the [X] planning sub-unit.

Environmental Consequences

Direct and Indirect Effects

All alternatives with project activities within one mile of known peregrine falcon nest sites include a timing constraint on those activities to avoid disturbance during the breeding period (Feb. 1 thru Aug. 31). Therefore, there are no direct or indirect effects to the peregrine falcon.

Cumulative Effects

Because there are no direct or indirect effects, the project would not add to any cumulative effect.

Regulatory Consistency

KFP

- All alternatives would meet/would not meet KFP goals (FP pg. II-1 #5 and #6) for peregrine falcon.

National Forest Management Act

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the peregrine falcon. This determination is based on: 1) [summarize rationale for determination]

Townsend's big-eared bat

Methods and Analysis Area

Townsend's big-eared bat population ecology, biology, habitat description and relationships identified by research are described in the following: Reel et al. (1989); Perkins and Schommer (1991); Kunz and Martin (1982); Montana Natural Heritage Program (1993); Christy and West (1993); Ross (1967); Whitaker and et al. (1977); Thomas and West (1991); Pierson et al. (1999). That information is incorporated by reference. Townsend big-eared bat occurrence data comes from recent District wildlife survey records and Forest historical data (NRIS FAUNA) and other agencies (MNHP).

All known caves, mines, or tunnels, lakes, and old growth were located within the [X] PSU. Caves, mines and tunnels were located through District records, field surveys, and mineral maps. Old growth stands were identified using the Kootenai National Forest Old Growth Stand Layer.

The analysis boundary for project impacts to individuals and their habitat is the [X] PSU. The boundary for cumulative effects and determining trend or viability is the Kootenai National Forest.

Affected Environment

District, Forest, and MNHP Townsend's big-eared bat observation and monitoring data indicate that [state summary of observation data for project area]. A Kootenai National Forest status summary of the Townsend's big-eared bat was documented by Johnson (1999). Surveys of the Kootenai NF (1993-1995) by Hendricks et al. (1995, 1996) have located the species in all planning units (Johnson 1999) but no key roosting sites such as caves or mines have been located. Population size on the KNF is unknown.

Big-eared bats are known to feed along forest edges, and can be associated with either dry or wet type coniferous forests. The species show a preference for old growth forest for roosting habitat (Thomas and West 1991). Young and mature forests are used for feeding (Id.), with primary foraging areas near lakes (Grindal 1995). The species could occur in the [X] PSU Or The species has been documented in the [X] PSU, and more specifically, within [insert name] Creek (Hendricks et al. 1995, 1996).

No [or yes?] mines or caves are known to exist within the [X] PSU. As the Townsend's big-eared bat has the potential to roost in tree cavities (Perkins and Schommer 1991; MNHP 1993), the larger diameter snags or trees with cavities in the area could be used for summer roosting. As discussed in the Old Growth section of this document, the [X] PSU has [insert percent] effective old growth designated, and [insert percent] total old growth acres, both designated and undesignated. These stands and the remaining timbered habitat provide suitable roosting habitat in the form of large snags with cavities, as well as abundant foraging habitat across the forest landscape. The analysis for cavity habitat within the [X] PSU determined that the cavity habitat potential (CHP) on NFS lands was [insert percent]. Please see the Snag Habitat section of this document for more detailed discussion.

Environmental Consequences

Direct and Indirect Effects

Under Alternative [X], No Action, no activities are proposed, and no Townsend's big-eared bats would be directly disturbed by any timber harvest or associated slashing and/or under burning. No direct effects to Townsend's big eared bats would be expected. Plant succession would continue on many of the sites, resulting in an increasing canopy closure and increasing density of under story conifers. This plant succession may have an indirect effect on Townsend's big eared-bats since they forage in open areas within forests and the increasing density of under story conifers may decrease the available habitat for prey species. It may also impede flight maneuvers needed for foraging. If a wild land fire was to occur, it potential key roosting habitat (caves or mines) are not likely to be impacted. There would be no expected change in the existing condition with implementation of the No Action Alternative. On NFS lands, no direct effect to cavity habitat potential would occur, and CHP would remain at [insert percent].

Under alternatives [X], [X], [X], and [X] regeneration and improvement harvest activities have the potential to disturb or reduce day roosting habitat (trees and snags with cavities or thick bark). Improvement harvest that opened up suitable habitat, or edge habitat created may improve foraging opportunities for bats that use the area. Under burning could both reduce and create snag habitat. Disturbance or mortality of bats could occur if bats were using a snag that was cut down. Displacement could occur during prescribed burning. Effects would be site-specific, affecting individuals rather than colonies, and are not likely to affect the viability of Townsend's big-eared bats.

Additional effective old growth would/would not be designated with implementation of Alternative [X] This results in an increase in designated old growth acres under 5,500 feet in elevation to [insert percent]. Total old growth acres, both designated and undesignated, would remain at [insert percent]. This maintenance of old growth habitat would provide large-diameter tree and snag habitat through time, and snag levels would be maintained at a minimum of 40

percent through time to provide cavity habitat. Alternative [X], no action does not change the current designation of old growth.

Cumulative Effects

Timber harvest activities and the removal of dead standing trees, as well as the removal of live trees with cavities, depending on their diameter, could reduce potential summer roosting sites for the bat.

Cumulatively, any burning associated with the [insert name of any ongoing EA, .e.g., Forest-wide Fuel Reduction and Wildlife Habitat Enhancement EA] would result in snags being both lost and created, but no direct effect on key roosting habitat would occur as no caves or mines are known to occur within the [insert name] PSU. Those acres burned would result in a mosaic burn pattern with rejuvenated shrubs over time. The proposed federal [list any reasonably foreseeable activities] and the [list any reasonably foreseeable activities on private lands e.g. Plum Creek Timber Corporation harvest] would also remove potential roosting habitat by the removal of snags and large trees in harvest units. Alternative [X], No Action, when considered in association with the planned activities on both public and private land, is expected to have no cumulative effects that would impact the Townsend's big-eared bat. Cumulatively, with implementation of Alternative [X] and the proposed [list any reasonably foreseeable activities], cavity habitat potential (CHP) on NFS lands would drop from [insert percent] to [insert percent].

Implementation of action Alternative [X], [X], [X], and [X] and other reasonably foreseeable activities described for federal lands under Alternative [X], no action, would drop the estimated CHP from [insert percent] to [insert percent]. Cumulatively, when other activities including the harvest on both private and federal lands discussed under alternative 1, and all past, present, and reasonably foreseeable activities on both private and federal lands are considered, habitat on federal lands is considered sufficient to provide cavity habitat to cavity dependant species. The NFS lands CHP at [insert percent] is expected to manage for a population level above the 40 percent level which is thought to be the minimum needed to maintain self-sustaining populations of snag-dependent wildlife (Thomas 1979:72).

Regulatory Consistency

KFP

- All alternatives would meet/would not meet KFP direction for sensitive species (FP II-1 #6).
- All alternatives would be/would not be consistent with KFP direction for old growth below 5,500 feet (FP Vol. 1 II-1 #7; II-7; II-22 and 23; Appendix 17; and Kootenai FSM 2432.22 Supplement No. 85).
- All alternatives would meet/would not meet KFP standards for snags and down wood (FP II-1 #8; II-22 and 23 and Appendix 16).

National Forest Management Act

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a

trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for Townsend's big-eared bat. This determination is based on: 1) [summarize rationale for determination]

For example, alternative x, no action would have no impact to Townsend's big-eared bats or their habitat. This determination is based on: 1) no direct change in the current availability of roosting and hibernacular habitat would occur, and 2) foraging habitat and potential roosting habitat would remain distributed across the [insert name] PSU and across the Kootenai National Forest.

Alternatives [X], [X], and [X] are not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability for Townsend's big-eared bat. This determination is based on: 1) The action alternatives would not affect key roosting or hibernation habitat associated with caves and mines, or any buildings and no impact to the species natality or mortality rates is expected, 2) cavity habitat in the form of snags, wildlife trees, and leave trees would continue to be provided across the Forest in managed (no less than 40 percent snag habitat levels) and unmanaged areas, and 3) a forested environment suitable for foraging would remain distributed across the [insert name] PSU and Forestwide.

Western Toad

Methods and Analysis Area

Western toad ecology, biology, habitat use, status and conservation are described and summarized in Maxell (2000) and Reichel and Flath (1995). That information is incorporated by reference. Western toad occurrence data comes from District wildlife observation records and Forest historical data (NRIS FAUNA) and other agencies (MNHP). The analysis boundary for project impacts and cumulative effects to individuals and their habitat is the [insert planning subunit name] Planning sub-unit (PSU). The boundary for determining trend or viability is the Kootenai National Forest.

Affected Environment

Western toads require over-wintering, breeding/rearing, and foraging habitat, and may also be dependant on habitats suitable for migration if the three required habitat types are isolated spatially (Maxell 2000:9). As summarized in Maxell (2000), over-wintering may take place in underground caverns or in rodent burrows; breeding/rearing takes place in aquatic sites such as shallow areas of large and small lakes or temporary ponds; and foraging habitat is largely terrestrial uplands. The highest elevation the species has been documented in Montana is 9,220 feet.

A Kootenai National Forest status summary of the western toad was documented by Johnson (1999). The species has been found in seven of the eight planning units. The population size is unknown and direct measures of population trend on the Kootenai are not available (Johnson 1999). However, many surveys have been conducted on the Forest since 1993. Surveys conducted between 1993 and 1995 located only 63 adults. Of the 134 wetland sites surveyed during the 1993-94 field season, only 10 had evidence of successful breeding (Werner and Reichel 1994); five additional sites were confirmed during the 1995 field season (Werner and Reichel 1996). Surveys of approximately 200 potential sites were conducted in the Bull River drainage during the 1997-98 field season, but evidence as a breeding site (tadpoles and eggs) were found at only

eight sites (Corn et al. 1998). Historical and active breeding sites by planning unit on the Kootenai National Forest are summarized by Johnson (1999). Forest-wide, approximately 35 breeding sites were verified between 1995 and 1998 (Id.).

There are [insert #] known breeding sites within the [X]PSU, with [insert #] being active within the last [insert #] years. These sites are located [X]. Additional breeding habitat is likely to occur in temporal ponds and road ditches. The terrestrial habitat within the [X] PSU is considered upland foraging habitat.

Or Results of annual district surveys have not identified any breeding sites in the [insert name] PSU. Potential breeding habitat [is or is not] present in the [X] PSU in the form of [X] and may also occur in temporal ponds or road ditches. The remaining terrestrial habitat within the [X] PSU is considered upland foraging habitat.

Criteria used to compare the alternative impacts on the western toad and its habitat includes:

1. known breeding/rearing habitat impacted
2. acres of upland foraging habitat harvested and burned
3. acres of upland foraging habitat (prescribed burned only)

Environmental Consequences

Quantitative data regarding the western toad's use of upland and forested habitats is limited. Western toads are known to migrate between the aquatic breeding and terrestrial non-breeding habitats (TNC Database 1999). Movement of toads has been documented from 2.5 km to over 5 km between breeding sites (Corn et al. 1998; Bartelt and Peterson 1994). Movement in foraging areas was documented to be significantly influenced by the distribution of shrub cover, and toads may have avoided macro-habitats with little or no canopy and shrub cover (such as clearcuts) (Bartelt and Peterson 1994). Underground burrows and debris were important components of toad selected micro-sites in a variety of macro-habitats. The western toad digs its own burrow in loose soil or uses those of small mammals, or shelters under logs or rocks, suggesting the importance of coarse woody debris on the forest floor (Id.). Project activities (e.g. timber harvest, prescribed fire) that remove vegetation resulting in reduced canopy and/or shrub cover or reduced coarse woody debris are likely to impact western toad habitat and toad use patterns. Soil compaction from ground based logging machines may impact over-wintering habitat (burrow sites).

Direct and Indirect Effects

Table [X] summarizes the direct and indirect changes in habitat acres due to each alternative.

Table [X]. Toad Habitat Impacted by Alternative on NFSL in the [X] PSU

Comparison Criteria	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Known breeding/rearing habitat impacted				
Acres upland foraging habitat harvested [X]				

Comparison Criteria	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Acres upland foraging habitat treated by prescribed burned only [X][X]				

[X]Existing condition column acres harvested through (insert year), most are considered to not/have enough cover for toad movement

[X][X] Existing condition no prescribed burns or wildfires greater than several acres have occurred in the [insert name/ PSU in the last 10 years due to fire suppression Or Existing condition [insert acres] of prescribed burns and wildfires have occurred in the last 10 years

Under Alternative **[X]**, No Action, no Forest Service harvest or prescribed burning would take place. No direct effect to the western toad would be expected with this alternative. Plant succession would continue on the sites. Indirectly, this would result in an increase in canopy closure and density of understory conifers. This increase in canopy closure and understory conifer density would have no direct, or indirect effect on breeding habitat, and little if any effect on upland habitat. Fuels would continue to accumulate on the upland sites. Should wildland fire occur, the aquatic breeding habitats would not be expected to be directly affected, however surrounding upland habitat could be burned. Western toads have been noted to re-colonize burned areas the following year with vegetation re-growth (B. Maxell, Herpetologist, State Zoologist with MTNHP, personal communication April 2003, Troy Mt., J. Holifield (Libby District Biologist) personal observation).

Timber Harvest and Road Building

Maxell (2000) showed the effect of timber harvest on amphibians in Montana has been studied only once. A review of the available literature by Semlitsch (2000) in the United States indicates timber harvest and road construction activities can impact aquatic breeding habitat by altering the hydrological cycle of wetlands which can impair completion of larval metamorphosis through early pond drying (hydroperiod shortened), or through increased predation (if hydroperiod is lengthened). Aquatic habitat quality can also be reduced by sedimentation and increased water temperatures.

The effects of timber harvest on upland habitats are summarized in Semlitsch (2000) and include elimination of shade, increase surface temperatures, disruption and compaction of soil structure, reduction in soil moisture, removal of coarse woody debris, and sedimentation of aquatic habitats from logging roads. The fragmentation of natural habitats from timber harvesting and road building may impede dispersal and decreases the probability of wetland re-colonization (Semlitsch 2000). Timber harvest (especially clearcutting) and associated silvicultural practices appear detrimental to terrestrial amphibian populations (Bury et al. 2000). Impacts from intensive forest management (e.g., even-aged harvesting) practices extend beyond the boundaries of harvested stands (deMaynadier and Hunter 1998). Recommendations for buffer zones and terrestrial habitats for corridors of movement for amphibian species are discussed by several authors (Semlitsch 1998; Hannon et al. 2002). Western toads are considered to be more terrestrial generalists (deMaynadier and Hunter 1998), and tend to be more tolerant than salamanders of forest edges, tree harvests, and declining patch size (Renkin et al. 2004).

The proposed timber harvest and road construction activity could result in incidental mortality to western toads due to ground disturbance.

Alternative [X] has the greatest potential for impacting toads or their habitat with timber harvest followed by Alternative [X]. Alternative x and Alternative [X] would be similar in their timber harvest effects. Please see Table [X] for acreage comparisons. Alternative x also proposes the most new road construction with [X] miles, followed by Alternative [X] with [X] miles and Alternative [X] with [X] miles. Alternative x has no new road construction.

Fire

There are currently no studies addressing the effects of fires on terrestrial amphibians in the Pacific Northwest (Bury et al. 2000). A review of the available literature by Russell et al. (1999) indicates that replacement of the fire-adapted vegetation by fire-intolerant associations indirectly leads to concomitant declines in overall herpetofaunal abundance and diversity. Without fire, species that use or can tolerate dense vegetation would be benefited, while those species that prefer open sites would continue to decrease over time.

There are few reports of fire-caused injury to herpetofauna even though many of these animals, particularly amphibians, have limited mobility (Russell et al. 1999). The resultant microsite variation within burns may account for observations that fire has little effect on herpetofaunal species (Lyon et al. 2000). Maintaining preferred or required habitat features presumably outweighs any fire-induced mortality that occurs (Russell et al. 1999). Mortality may be associated with the direct and indirect effects of fire that alter prey availability or change shelter and microclimate (Lyon et al. 2000; Russell et al. 1999). Indirectly, although fire-induced disturbance may decrease herpetofauna within a particular patch, the prescribed burning should result in a mosaic of successional stages and habitat structure that should increase diversity on a broader scale (Russell et al. 1999).

Site preparation burning in timber harvest units is also proposed under all alternatives. Alternative [X] would treat the most acreage [insert acres] followed by Alternative [X] [insert acres], Alternative [X] [insert acres], and then Alternative [X] [insert acres]. Slash/and or burning activities would occur on [X] acres in Alternative [X], [X], and [X], while Alternative [X] would treat [X] acres. All activities associated with timber harvest, road construction and prescribed fire would be consistent with INFS and direct or indirect effects on riparian habitat (potential breeding sites) associated with the western toad would be unlikely. No harvest would occur within Streamside Management Zones.

Alternative [X] is the only action alternative that proposes the use of the herbicide hexazinone on [X] acres. Hexazinone reduces the amount and diversity of shrubs/forbs where it is used. The areas of treatment with loss of native vegetation would not provide habitat for the western toad.

Cumulative Effects

Other reasonable and foreseeable activities proposed by the Forest Service and other agencies and private landowners would occur as described in Chapter 3. Existing conditions consider past actions, including approximately [insert acres] of Corporate and Montana Department of State lands already harvested. Under Alternative [X], No Action, plant succession would continue on the sites. Any increase in canopy closure and density of understory conifers would have no cumulative effect on breeding habitat. The reasonably foreseeable federal [insert name] Timber Sale would harvest [X] acres and approximately [X] acres would be harvested by [insert private

ownership ie Plum Creek Timber Corporation]. Prescribed burning under the federal [X]TS would treat [X] acres, and the [X] list on-going EA's e.g. Forest-wide Fuels Reduction and Wildlife Habitat Enhancement EA] would treat [X] acres with slash/and or burn treatments in the [insert name]PSU. Cumulative effects in addition to the proposed alternatives are displayed in Table [X].

Table [X]. Toad Habitat Cumulatively Impacted on NFSL In The [X] PSU

Comparison Criteria	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Known breeding/rearing habitat impacted				
Acres upland foraging habitat harvested				
Acres upland foraging habitat treated by prescribed burned only				

Alternative [X]- includes [X] TS ([X] acres harvest/ [X] acres of slash/burning, and [X] acres of prescribed burning from the [insert EA, e.g.Forest-wide Fuels EA].

Action Alternatives –includes activities described in Alt. 1, and additional timber harvest/burning acres as follows; Alternative [X] [insert acres of harvest/burning], Alternative [X], Alternative [X], and Alternative [X]

The risk of direct mortality to toads during burning is low, but it can occur. Toads typically seek refuge in moist habitats such as animal burrows and under rocks and logs where the fires would not burn (Russell et al. 1999). These cumulative increases in activities is/is not expected to cause additional in-channel sediment production or cause changes in channel morphology due to stable stream types, so the proposed actions would not have a measurable effect on aquatic habitat (please refer to the Watershed section of this document). Upland terrestrial habitat would be impacted by the removal of travel corridors between existing regeneration units.

Alternative [X], No Action, when considered in association with the planned activities on both public and private lands, is expected to have no direct or indirect effects that would impact the western toad because current availability of suitable habitat would not change. Suitable habitat would still occur on National Forest lands. Cumulatively, private timber harvest and federal timber harvest activities and road construction, and the creation of openings could affect upland toad habitat.

The action Alternative [X], [X], [X], and [X] when considered in association with the planned activities on both public and private lands, are/are not expected to have adverse cumulative effects that would impact the western toad. In the short-term both timber harvest and slash and/or burn units would not provide habitat until shrub cover returned (2-3 years). The temporary reduction in habitat is not likely to result in a declining population trend for this species. Cumulative effects of all past, ongoing, and reasonably foreseeable activities are the same as discussed under alternative 1

Regulatory Consistency

KFP

- All alternatives would meet/would not meet KFP direction for sensitive species (FP Vol. 1, II-1 #6).
- All alternatives would be/would not be consistent with KFP riparian standards and guidelines (FP Vol. 1 II-28 thru 33) as amended by INFS.
- All alternatives would meet/would not meet KFP standards for snags and down wood (FP II-1 #8; II-22 and 23 and Appendix 16).

National Forest Management Act

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the Western toad. This determination is based on: 1) [summarize rationale for determination]

For example, implementation of Alternative [X], the no action, would have no direct or indirect impact on the western toad. Cumulatively however, changes may occur.

Implementation of the action alternatives may impact individuals or habitat, but would not likely contribute to a trend towards federal listing for the western toad. This finding is based on: 1) removal and partial consumption of coarse woody material in upland sites due to harvest activities and/or fire, 2) the longer-term recruitment of coarse woody debris due to fire killed trees falling over time, 3) no impact or change to the current availability of breeding habitat, 4) retention of riparian movement corridors, 5) the low risk of direct mortality during burning and the limited direct mortality risk during timber harvest activities, and 6) Suitable habitat would remain in the [insert name] PSU and distributed across the Kootenai National Forest.

Wolverine

Methods and Analysis Area

Wolverine population ecology, biology, habitat description and relationships identified by research are described in Banci (1994) and Butts (1992). That information is incorporated by reference. Wolverine occurrence data comes from recent District wildlife observation records and Forest historical data (NRIS FAUNA) and other agencies (MFWP). Because wolverine are habitat generalist, except for denning habitat, only Wolverine denning habitat was modeled using [state what veg source i.e. CEM, TSMRS] vegetation data and running the Kootenai [state what model used ie. CEM, TSMRS] wolverine denning habitat model [citation for model] (see project file). The analysis boundary for project impacts to individuals and their habitat is the [insert name] planning sub-unit. The boundary for cumulative effects and determining trend or viability is the Kootenai National Forest.

Affected Environment

Wolverine observation and monitoring data indicates that [state summary of observation data for project area]. Johnson (1999) shows wolverine presence confirmed in seven of the eight planning units on the Kootenai.

Reudiger (1994) shows the Kootenai National Forest as a primary habitat area for wolverine. Modeling wolverine denning habitat identifies [X] acres of potential denning habitat in the [insert name] planning sub-unit. Following the identification process outlined in Reudiger (1994), the [insert name] planning unit (major drainage) is assigned as a primary/secondary wolverine conservation area (Johnson 2004b). The [insert name] planning sub-unit (sub-drainage) is determined to be a high/a minimal/unsuitable for a quality wolverine habitat area (Id.). Johnson (1999) modeled (Heinz 1997) about 12,000 acres of wolverine denning habitat on the Forest.

Environmental Consequences

Table [X] summarizes the changes in denning habitat acres due to each alternative.

Table [X]. Wolverine Denning Habitat – Changes by Alternative

Comparison Criteria	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Denning Habitat Acres - Planning sub-unit (acres/+/-% change)				
Denning Habitat Acres - Forest-wide (acres/+/-% change)	12,000			

[X] data source: KNF CEM model

Direct and Indirect Effects

Each of the action alternatives would/ would not result in a reduction of wolverine denning habitat (see Table [X] for amounts). Many papers (Joslin and Youmans 1999; Witmer et al. 1998; Copeland 1996; Weaver et al. 1996; Thomas 1995; Butts 1992) show that the wolverine is sensitive to human presence, which indicates that it is highly likely they would be displaced during project activities. Displacement distances, due to human activity, vary but in general the biggest impact for most species is shown to occur out to ¼ to 1/3 mile or nearest ridgeline (Christensen and Madel 1982; Schirato 1989; Frederick 1991; Grant et al. 1998; Austin 1998). Distances can be farther depending on type of disturbance (e.g., helicopter flying and use of explosives– USFS 1988, IGBC 1990; or OHV in open country – Bury 1983, may displace animals up to one mile). Displacement distance for the proposed project is estimated to be [X] mile. Project implementation could result in displacement of wolverine from approximately [X] acres (around unit[X]). The most critical period for wolverine is denning (12/1-4/30). No project activities are allowed within one-half mile of denning habitat during this time frame.

Optional: analysis of habitat quality suggestions from Ruediger (1994). Ruediger (1994) provides suggested levels of forested habitats by age group for high quality wolverine habitat sub-drainages. Table [X] summarizes the changes in the [insert name] sub-drainage based on Ruediger (1994). Maps of these conditions, by Alternative, are in the project file.

Table [X]. [Optional] High Quality Habitat Changes by Alternative in the [X] Sub-drainage

Forested Habitats by Age Group (% suggested by Ruediger)	Alternatives			
	[X] (No Action) (Existing Condition)	[X]	[X]	[X]
Stands < 20 years old (<10%)	[X] ac. ([X]%)	[X] ac. ([X]%)	[X] ac. ([X]%)	[X] ac. ([X]%)
Stands < 50 years old (<25%)	[X] ac. ([X]%)	[X] ac. ([X]%)	[X] ac. ([X]%)	[X] ac. ([X]%)
Stands > 50 years old (>75%)	[X] ac. ([X]%)	[X] ac. ([X]%)	[X] ac. ([X]%)	[X] ac. ([X]%)
Stands >100 years old (50%)	[X] ac. ([X]%)	[X] ac. ([X]%)	[X] ac. ([X]%)	[X] ac. ([X]%)

The proposed activities for all action alternatives do/do not maintain or move the wolverine habitat toward the desired [X] quality condition in the [insert name] drainage. The sub-drainage would/ would not continue to provide a [X] habitat quality condition. Wolverines are likely to continue using the available habitat.

Cumulative Effects

Alternative [X] (No Action) would not contribute to any cumulative effects on wolverine or their habitat. The action alternatives, in combination with the baseline conditions and reasonably foreseeable projects (see earlier list) would [X]

Regulatory Consistency

KFP

- All alternatives would meet/would not meet KFP direction for sensitive species (FP Vol. 1, II-1 #6).

National Forest Management Act

Statement of Findings

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for the wolverine. This determination is based on: 1) [summarize rationale for determination]

Optional Combined Section Vs Individual Species Consistency Above –if used delete regulatory consistency section under each species

Sensitive Species Regulatory Consistency

KFP: The Kootenai National Forest is directed to “identify, protect, and manage” habitat for sensitive species in order to assist in maintaining viable populations. The KNF KFP contains the following goals and direction for sensitive species: “determine the status of sensitive species and provide for their environmental needs as necessary to prevent them from becoming threatened or endangered” (Vol. I, II-1 #6); All alternatives would meet/would not meet this KFP direction for the [insert #] sensitive species analyzed for this project.

All alternatives are consistent with KFP direction for old growth below 5,500 feet (FP Vol. 1 II-1 #7; II-7; II-22 and 23; Appendix 17; and Kootenai FSM 2432.22 Supplement No. 85). See the old growth section and the species analyses for fisher, flammulated owl, Northern goshawk, and Townsend’s big-eared bat as well as the pileated woodpecker analysis.

All alternatives are consistent with KFP direction for snags, snag replacement trees, and down wood (USDA Forest Service 1987, II-1 #8; II-7; and Appendix 16). See the Snag and Down wood section and the species analyses for Black-backed woodpecker, flammulated owl, Townsend’s big-eared bat, Western toad, as well as the pileated woodpecker analysis.

All alternatives that include prescribed burning in old growth are consistent with KFP direction (Vol. 1 III-56). See the old growth analysis and the species analyses for fisher, flammulated owl, Northern goshawk, and Townsend’s big-eared bat as well as the pileated woodpecker analysis.

All alternatives are consistent with KFP riparian standards and guidelines (FP Vol. 1 II-28 thru 33) as amended by INFS. See the species write-ups for Coeur d’Alene salamander, common loon, fisher, harlequin duck, northern bog lemming, northern leopard frog and western toad as well as the aquatics section.

National Forest Management Act: KFP direction is to “Maintain diverse age classes of vegetation for viable populations of all existing native, vertebrate, wildlife species,... in sufficient quality and quantity to maintain viable populations” (Vol. I, II-1 #7). The viability requirement of NFMA is met by all alternatives as documented in the individual sensitive species analyses and supported by the statement of findings for each sensitive species.

Threatened, Endangered, and Proposed Species

Regulatory Framework

The Endangered Species Act (ESA) of 1973 declares that all Federal agencies ... “utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act.” The ESA (Section 7) requires federal agencies to ensure that any agency action (any action authorized, funded, or carried out by the agency) are not likely to jeopardize the continued existence of any threatened, endangered, or proposed species. Agencies are further required to develop and carry out conservation programs for these species.

The National Forest Management Act (NFMA) (36 CFR 219.19) directs the Forest Service to manage habitat to maintain viable populations of existing native and desired non-native vertebrate species. A viable population is defined as one that has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area, the Kootenai National Forest.

Species List

A current species list for the Kootenai National Forest (KNF) was obtained from the U.S. Fish and Wildlife Service (here after FWS) web site (<http://montanafieldoffice.fws.gov>) on [mo/da/year](#). The FWS concurred with potential listed species distribution maps and resulting consultation areas for the KNF in 2001 (USDI FWS: Wilson). Species status in the influence area of the proposed project is shown in Table [X].

Table [X]. Threatened, Endangered, and Proposed Wildlife Species: Project Area Status

Species	ESA Status	Status In Analysis Area [X]	Comments ¹
Grizzly Bear	Threatened	S/K/NS	
Bald Eagle	Threatened	S/K/NS	
Gray Wolf	Endangered	S/K/NS	
Canada Lynx	Threatened	S/K/NS	

Status Key: K = This species is known to occur within the project area.

S = Suitable habitat exists and species is suspected to occur within project area.

NS = No Suitable habitat, species is not suspected to occur within the project area. No further analysis required.

¹Select All That Apply

1 = Analysis Area is outside Recovery Zone or reoccurring use area, or FWS agreed to consultation are

2 = Analysis area is inside Recovery Zone or reoccurring use area, or FWS agreed to consultation area

3 = [\[insert other comments here\]](#)

Grizzly Bear

Methods and Analysis Area

Grizzly bear population ecology, biology, habitat description and relationships identified by research are described in USFWS (1993), [insert appropriate citation\(s\) for recovery zone: the annual progress reports for the Cabinet-Yaak grizzly bear research \(Kasworm et al 1989-2004\); Kasworm and Manley 1988\)](#). That information is incorporated by reference. Grizzly bear occurrence data comes from recent District wildlife observation records, Forest historical data (NRIS FAUNA), and other agencies (USFWS, MFWP). The analysis boundary for project impacts to individuals and their habitat is [the bear management unit in the recovery zone and the grizzly bear outside the recovery zone reoccurring use polygon \(here after BOrZ polygon\) \(Wittinger et al. 2002\)](#). The boundary for cumulative effects and making the effects determination is the recovery zone and/or the BOrZ polygon.

Affected Environment

Inside Recovery Zone [\[Include this section when appropriate\]](#)

The proposed project is in the [\(Cabinet-Yaak / Northern Continental Divide\)](#) grizzly bear recovery zone (USFWS 1993). Project activities would occur in the [\[insert names\]](#) Bear Management Unit(s) (BMU(s) [insert #\(s\)](#)) (Figure [X]). The grizzly bear population for the [CYE/NCDE](#) is currently estimated at [\[X\]](#) animals [\[insert citation\]](#), with a 75 percent probability of a downward population trend (Wakkinen and Kasworm 2004). Bear activity in the impacted BMUs includes: [\[insert summary by BMU, including mortality, females with cubs\]](#).

The FWS established incidental take parameters applicable within the recovery zones (FWS 2004). They are: core habitat, open motorized route density (OMRD), and total motorized route density (TMRD). Table [X] shows the existing habitat conditions for these parameters.

Table [X]. Existing Grizzly Bear Habitat Conditions by BMU

BMU	Percent Core	OMRD % of BMU > 1mi/sq.mi.	TMRD % of BMU >2 mi/sq.mi.
[X]	[X] (Std. ≥ [X]%)	[X] (Std. ≤ [X]%)	[X] (Std. ≤ [X]%)
[X]	[X] (Std. ≥ [X]%)	[X] (Std. ≤ [X]%)	[X] (Std. ≤ [X]%)

And/or Outside Recovery Zone [Include this section when appropriate]

Grizzly bear reoccurring use areas outside the recovery zones (BOrZ polygons) have been identified (Wittinger et al. 2002). The FWS has identified three factors falling under Forest Service jurisdiction that contribute to “taking” (ESA Section 9) of grizzly bears that apply in these areas. They are: 1) access management; 2) food attractants (human and livestock food storage and garbage); and 3) livestock presence. The proposed project is in the [insert name] BOrZ polygon (Figure 1 in Johnson 2003). Bear activity in the impacted BOrZ polygon includes: [insert summary including mortality, females with cubs].

The FWS (2004), using baseline information from Johnson (2003), established access management standards for areas outside the recovery zone, with reoccurring grizzly bear use. The access management baseline conditions for the [X] BOrZ polygon are [X] miles/square mile of linear open road density and [X] miles/square mile of linear total road density (FWS 2004).

Livestock are/are not present in the [X] BOrZ polygon. If present provide details: allotments, livestock class/type, numbers, past problems, etc. – see Johnson 2003 for more info

Food attractants are/are not present in the [X] BOrZ polygon. If present provide details: number sites, type attractants, past problems, etc. – see Johnson 2003 for more info

Environmental Consequences

Inside Recovery Zone [include as appropriate]

Table [X]. summarizes the effects to core, OMRD and TMRD by each alternative.

Table [X]. Grizzly Bear Habitat Effects by Alternative

BMU	Habitat Component	Alt. [X] No Action (Existing Condition)		Alt. [X]		Alt. [X]		Alt. [X]	
		During	After ¹	During	After	During	After	During	After
[X]	% Core								
	% BMU								

BMU	Habitat Component	Alt. [X] No Action (Existing Condition)	Alt. [X]	Alt. [X]	Alt. [X]
	OMRD > 1 mi/sq.mi.				
	% BMU TMRD > 2 mi/sq.mi.				
[X]	% Core				
	% BMU OMRD > 1 mi/sq.mi.				
	% BMU TMRD > 2 mi/sq.mi.				

¹ for No Action Alt. - Existing condition changes shown in “After” column are due to projects other than proposed activity.

Outside Recovery Zone [include as appropriate]

Table [X] summarizes effects to incidental take parameters applicable outside the recovery zone.

Table [X]. Changes to Incidental Take Parameters by Alternative for the [X] BOrZ Polygon

Incidental Take Parameter	Alt. [X] (No Action) (Existing Condition)	Alt. [X]	Alt. [X]	Alt. [X]
Linear ORD	[X] mi./sq.mi.	[X] mi./sq.mi.	[X] mi./sq.mi.	[X] mi./sq.mi.
Linear TMRD	[X] mi./sq.mi.	[X] mi./sq.mi.	[X] mi./sq.mi.	[X] mi./sq.mi.
Livestock		No change		
Food Attractants		No Change		

Direct and Indirect Effects [inside/outside RZ as appropriate]

Include discussion of displacement effects from point source disturbances. This is the former HE, only show acres not percent. i.e. The No Action alternative has reduced habitat effectiveness on [X] acres due to disturbance from existing point source disturbances, such as human use on currently open roads. The existing core areas provide displacement habitat for on-going projects. Alternative [X] would/would not cause additional incidental take because OMRD, TMRD, and core standards are/ are not met in BMU [X]. and/or: Alternative [X] would/would not cause additional incidental take because baseline linear open and/or total road densities are/ are not maintained in the [X] BOrZ polygon.

Effects of Timber Harvest Activities (includes felling through loading)

The point source disturbances from timber harvest actions may displace grizzly bears from approximately [X] acres during the period of activity.

Effects of Road Construction and Use (includes hauling and all other types of road use)

During hauling on new or previously closed roads, grizzly bears may be displaced from approximately [X] acres. The effects of road use have been accounted for through the road density and core standards and any specific associated mitigation for this project.

The proposed project would/would not change the livestock situation in the impacts BOrZ polygon.

The food attractant situation would/would not change with implementation of the proposed action.

Cumulative Effects

[be sure to check out the Excell spreadsheet for Tracking linear ORD and TRD and flexibility for BOrZ areas]. File path is: /fsfiles/office/resources/26_wl_fi_bot/terrestrial/tes/te_spp/grizzly_bear/outside_rz/tracking_road_s_outside.xls

Alternative [X] (no action) would not contribute any cumulative effects to grizzly bear or their habitat. The over all percent core for the Cabinet-Yaak recovery zone remains at [X] percent. The action alternatives, in combination with the baseline conditions and reasonably foreseeable projects (see earlier list) do notchange/change the over all recovery zone core from/to [X] percent.

Regulatory Consistency

The project is/is not in compliance with ESA. This statement is based on: 1) state rationale for statement i.e. Project meets all terms and conditions established by FWS (2004). 2) Consultation with FWS completed and concurrence received.

Statement of Findings

The proposed action (is likely to adversely affect)(may affect, but is not likely to adversely affect)(is likely to benefit)(would not affect) the grizzly bear. This determination is based on: 1) [summarize rationale for determination]

Bald Eagle

Methods and Analysis Area

Eagle population ecology, biology, habitat description and relationships identified by research are described in USDI U.S. Fish and Wildlife Service (USDI 1995), USDI 1999, Montana Bald Eagle Working Group (MBEWG) 1991, and MBEWG 1994. That information is incorporated by reference. Eagle occurrence data comes from recent District wildlife observation records, Forest historical data (NRIS FAUNA), and other agencies (USFWS, MFWP).

Habitat management guidelines from the Montana Bald Eagle Management Plan (MBEMP) (MBEWG 1994, 1991) serve as the measure for bald eagle habitat management on the Kootenai National Forest. The effect of any proposed activity on potential eagle habitat and any known eagle nests located within the bald eagle consultation area agreed to by the USFWS (USDI 2001) will be discussed in relation to the MBEMP.

The analysis boundary for project impacts to individuals and their habitat is all lands within the [X] PSU that fall within the consultation boundaries agreed to by the FWS (USDI 2001). The boundary for cumulative effects and making the effects determination is the consultation area agreed to by the FWS (USDI 2001) for bald eagles on the Kootenai National Forest.

Affected Environment

Bald eagles occur as both seasonal migrants and year-round residents within the boundaries of the Kootenai National Forest. Nesting has increased significantly over the last two decades within the boundaries of the Kootenai National Forest. Only one active nest was known to occur in 1978, whereas 35 nests (18 on NFS and 17 on private land) were known and monitored in 2004. Nest success for active nests over the last 20-year period is about 83 percent, with an average of 1.3 fledglings per active nest (KNF bald eagle monitoring records).

Wintering bald eagle numbers have fluctuated over the years depending on food sources (fish from open waters and dead animals along roads and railroad tracks) and winter conditions (open versus frozen water for foraging habitat). Mid-winter bald eagle counts have averaged 96 bald eagles over the past 20 years (KNF bald eagle monitoring records).

The [insert name] PSU falls within the Upper Columbia Basin Management Zone (Zone 7) of the Pacific Bald Eagle Recovery Area (USDI 1986). About [X] acres of the bald eagle consultation area (USDI 2001) occur in the PSU. Or Based on Wilson (USDI 2001), there are no suitable bald eagle habitat acres in the [X] PSU. Forest-wide potential bald eagle habitat covers about 564,558 acres (242,965 NFS; 275,470 PVT; and 46,123 water) (based on USDI 2001).

MBEMP guidelines identify four general habitat categories and management concerns for bald eagles. They are: nesting habitat, foraging habitat (including perch sites), winter habitat (including roost sites), and mortality risks.

Nesting habitat is typically associated with mature forest stands in close proximity (less than 1 mile) to large bodies of water, including lakes and fourth order streams, which provide an adequate prey base. Nesting habitat includes 3 management zones: I – Nest site area, II – Primary use area, and III – Home Range. A description of each zone and associated management objectives and guidelines are found in the MPEMP (MBEWG 1994) and are included by reference. There are insert #/no bald eagle nest sites in or near (home range extends into the PSU) the [X] PSU. [Insert information about any existing nest sites e.g. name, distance from project, summary of reproduction history, etc.] If No nests in PSU then use: Currently, the closest known active nest site is near/along the [list lake or river], about [X] air miles from the proposed project.

Foraging habitat consists of lakes, rivers, wetlands and meadows which provide open flight paths, perches, and adequate prey. It also includes highway and railroad corridors (especially in the winter) due to dead animals found in these areas.

Winter habitat is generally dictated by the presence and abundance of food, open water, and secure night roost sites (MBEWG 1994). Eagles are/are not known to winter within the [X] PSU. If present use: They winter near (insert water bodies, highway #, railroad tracks as appropriate).

The MBEMP (1994) identifies bald eagle mortality risks as shooting, accidental trapping, poisoning, diseases, and electrocution. On the Kootenai NF bald eagles have also died from collisions with motor vehicles and trains. In the [X] PSU all of these risks are likely present. Or In the [X] PSU only risk from [X], [X] and [X] are present. [Include a brief description of the actual risk e.g. highways present, powerlines present, etc.]

Environmental Consequences

Direct and Indirect Effects

Use the table if a nesting territory is impacted. If no nesting territory just talk about the acres in the identified consultation area.

Table [X] summarizes the impacts, by Alternative, to bald eagle habitat in the [X] PSU.

Table [X]. Use if nesting territory is impacted Management Activity Acres within the [insert name] Eagle Nesting Habitat and the Identified Bald Eagle Habitat Consultation Area (USDI 2001) by Alternative in the [X] PSU

Alt.	Type of Activity (eg. Timber harvest)	Acres in Nest Site Area (Zone 1)	Acres in Primary Use Area (Zone 2)	Acres in Home Range Foraging Area (Zone 3)	Other Acres within Identified Bald Eagle Consultation Area
[X]	Timber harvest				
	Slashing				
	Prescribed burn				
	Total Acres				
[X]	Timber harvest				
	Slashing				
	Prescribed burn				
	Total Acres				
[X]	Timber harvest				
	Slashing				
	Prescribed burn				
	Total Acres				
[X]	Timber harvest				
	Slashing				
	Prescribed burn				
	Total Acres				

Alt. = Alternative

Existing habitat is displayed under Alternative [insert #], the No Action Alternative. These are not impacted acres.

timber harvest/slashing/burning would occur on the acres shown for each action alternative

Acres are not cumulative

The No Action Alternative [X] would not impact nesting habitat. Action Alternatives [X], and [X] would/would not impact nesting habitat (see Table [X]). The acres treated and timing of activities would/would not result in displacing or disturbing nesting eagles. Could add more detail related to activities by zone if appropriate.

The No Action Alternative would not impact foraging habitat. Action alternatives [X] and [X] would/would not impact foraging habitat (see Table [X]). Eagles are/are not likely to be displaced from foraging habitat during project activities.

No alternative would impact bald eagles during the winter. Winter habitat would/would not be impacted.

The No Action alternative would not add to bald eagle mortality risk. The action alternatives would/would not add to the bald eagle mortality risk. If it does add to risk, include description of how e.g. new power line, increased access for winter trapping, etc.

Cumulative Effects

The No Action Alternative would not contribute to any cumulative effects on the bald eagle or its habitat. The action alternatives would/would not contribute to cumulative effects. If they do state what, how, etc.

Regulatory Consistency

- The project complies/does not comply with KFP direction on T&E species that applies to the bald eagle (FP II-1 #5, II-22).
- The project is/is not consistent with the Endangered Species Act as evidenced through consultation with the FWS and receipt of concurrence.
- The project is/is not consistent with the Bald Eagle Protection Act (16 U.S.C. 668-668C 1978).

Statement of Findings

The proposed action (is likely to adversely effect)(may effect, but is not likely to adversely effect)(is likely to benefit)(would not effect) the bald eagle. This determination is based on: 1) [summarize rationale for determination]

Gray Wolf

Methods and Analysis Area

Strategies to protect and recover wolf populations in Montana, as well as the ecology, biology and habitat descriptions are outlined in the Northern Rocky Mountain Wolf Recovery Plan (USFWS 1987). The Northwest Montana (NWMT) Recovery area is one of three wolf recovery areas identified for the Northern Rocky Mountain wolf population (USFWS et al. 2004). The Kootenai National forest is within the NWMT Recovery Area. Information for this recovery area is provided by the Rocky Mountain Wolf Recovery 2004 Annual Report (USFWS et al. 2005) and is incorporated here by reference. Wolf occurrence data comes from recent District wildlife observation records, Forest historical data (NRIS FAUNA), and other agencies (USFWS, MFWP).

Measurement indicators for this wolf analysis include the following key habitat components found in the Wolf Recovery Plan (USFWS 1987):

- Sufficient, year-round prey base for big game or alternate prey: this component can be measured by adhering to KFP big game management recommendations. For this planning area, (white-tailed deer/elk) management recommendations were applied. They include cover/forage ratios; road densities; opening sizes; key habitat features; movement areas; habitat effectiveness levels, and security levels. See the MIS section for details.
- Suitable and somewhat secluded denning and rendezvous sites: Sensitivity to disturbance at den sites and subsequent abandonment varies greatly among individual wolves. One incident of human disturbance at the den may cause abandonment for some wolves, while other wolves will tolerate some human disturbance (Thiel et al. 1998) and may not abandon dens unless there are repeated or severe incidents of disturbance (Claar et al. 1999). One recommendation for protection of den sites from human disturbance includes restricting human access within a 1.5 mi. radius of an occupied den from 4 weeks prior to whelping to the end of denning activity. Closure area should be irregular in shape to avoid pinpointing den locations. Rendezvous sites should be similarly protected (Frederick 1999). MFWP is not recommending any localized closures near wolf den or rendezvous sites on public lands outside national parks (Sime 2002), and early surveys in N.W. Montana indicated that public support to recover wolves would dwindle if recreational or public lands were restricted to promote recovery (Tucker and Pletscher 1989). MFWP encourages land management agencies to consider the locations of wolf den and rendezvous sites and habitat security in their future planning activities in the same context as considering the locations of ungulate winter range or bald eagle nests (Sime 2002). Assumptions with this method would include maintaining the habitat integrity of the denning and rendezvous sites. Recommendations in this paper are to identify the proposed action, and any past actions that have occurred near the den site. Proposed actions may be tolerated if they have occurred during the same time period in the past (example: an open road with similar amounts of traffic as in the past). Identify these actions and discuss with the consultation biologist to determine the course of action for each specific situation. Den and rendezvous sites can also be protected by enacting timing restrictions on proposed activities within the denning/rendezvous site areas. These restrictions would limit operating periods to the fall or winter seasons when these sites are unoccupied.
- Sufficient space with minimal exposure to humans; this component is associated with reducing the risk of human-caused mortality to wolves. Human disturbance and accessibility of wolf habitats (i.e. road densities) are the principle factors limiting wolf recovery in most areas (Leirfallom 1970; U.S. Fish and Wildlife Service 1978, 1987 all in Frederick 1999, Thiel 1978). These components can be generally measured by maintaining open road density standards required by the KFP as well as maintaining any security habitat recommended in the big game habitat recommendations.

The analysis boundary for direct, indirect and cumulative impacts to transient wolves and their habitat is the [insert name] PSU. Or The analysis boundary for direct effects to the [insert wolf pack name] and their habitat is the [X] PSU. Cumulative and indirect effects would be assessed on this planning sub-unit as well as adjacent planning sub-units located in this packs home range.

Affected Environment

At the end of 2005, there were 46 wolf packs in all of Montana, with 19 meeting breeding pair criteria. These packs contained a minimum estimate of 256 wolves (USFWS, 2006). The Montana portion of the Northwest recovery area supported 19 of those packs (10 were breeding packs). This area includes the Kootenai National Forest. There are currently 5 packs (3 breeding packs) using the KNF for all or part of their territories. These packs had a total 34 wolves at the end of 2005 (ibid). This is an increase from last year. There were 2 known mortalities in the KNF packs this past year.

To Use if PSU receives use by a wolf pack

The [insert pack name] pack uses the [X] PSU as a portion of their home range. Since the pack was established in [insert date], there have been [insert number] known depredations on livestock attributed to this pack, and [insert number] known wolf mortalities. These mortalities include natural as well as human-caused mortalities. Currently, the pack includes [insert number] adults and [insert number] pups and [insert number] pack members are radio-collared (USFWS 2005).

Prey Base: The [X] PSU supports primarily/both summer/ winter habitat for most big game species. (insert prey species) are the most abundant big game species found within the [X] PSU. Most big game species are found in the PSU, however in fewer numbers than (list abundant big game species listed above). Together, this mix of species provides/does not provide a good year-round/winter/summer prey base for wolves. See the MIS species section of this document for more information on [insert deer/elk] habitat conditions and population status in the [X] PSU. The [insert species] was chosen as the MIS species for this Planning Area and is a key prey item for the [insert pack name]. The management recommendations for this species are/are not being met in this Planning Unit (see MIS section).

Den and Rendezvous Sites: There are [insert number] known den sites in the [X] PSU. There are [insert number]/no known rendezvous sites that have been used in the PSU since the pack was established. These areas continue to be monitored on a yearly basis.

Sufficient Space with Minimal Exposure to Humans

Open road densities by Management Area (MA) currently would meet/would not meet KFP Standards within this PSU. Security habitat recommendations for (elk are/are not) within recommended levels (see MIS section for details).

To use if PSU does not receive wolf pack use

There are no known established packs, denning or rendezvous sites within the [X] PSU, but/and wolves have(not) been observed in the area. Observations of wolves include: (include observations). Potential denning and rendezvous sites are available however there are no known sites therefore, no special restrictions are necessary within the Planning Area to avoid disturbance of den or rendezvous sites. No/insert number human-caused mortalities have been documented in the Planning Area.

Prey Base: The [X] PSU supports primarily summer/ winter habitat for [insert prey species]. [insert prey species] are the most abundant big game species found within the [insert Planning Area]. Most other ungulate prey species are also found in the Planning Area, however in fewer numbers than (list abundant big game species listed above). Together, this mix of species

provides/does not provide a good year-round/winter/summer prey base for wolves. See the MIS species section of this document for more information on [insert deer/elk]. The [insert species] was chosen as the MIS species for this Planning Area and is a key prey item for the [insert pack name]. The management recommendations for this species are/are not being met in this Planning Unit (see MIS section for details).

Sufficient Space with Minimal Exposure to Humans

Open road densities by Management Area (MA) currently would meet/would not meet KFP Standards within this Planning Area (see MIS section for details). Security habitat recommendations for (elk are/are not) within recommended levels (see MIS section for details).

Environmental Consequences

Direct and Indirect Effects to Alternatives

Alternative 1 (No Action)

No (timber harvest or road openings/closings – insert proposed activity) are proposed in this alternative. This alternative maintains current conditions for prey habitat and human access within the Planning area. Not implementing proposed road restrictions would maintain and existing habitat security. A number of existing young timber stands would develop cover values over time.

Alternative [X]

Prey Base: As discussed in the effects analysis for [insert big game MIS used] this alternative would maintain/improve/decrease habitat conditions for the [insert big game MIS used], the wolves' main prey base. Therefore prey conditions for wolves are likely to be maintained/improved/decreased with this alternative. All habitat management recommendations for [insert species] are being met with this alternative Or add; except for the [insert recommendation not met]. Insert summary of big game analysis (see Table [X] for a summary of the big game habitat parameters by alternative).

Denning/Rendezvous Sites: There are no known denning or rendezvous sites within the Planning Area. Suitable habitat for denning or rendezvous sites would remain available following all alternatives.

Or

This alternative would not affect known denning or rendezvous sites. All activities are located further than 1.5 miles from denning and rendezvous sites Or give whatever restrictions you may be imposing. Timing restrictions have been imposed on the timber harvest located within 1.5 miles of the den/rendezvous site. This activity would take place outside the time these sites are occupied (give specifics).

Sufficient Space with Minimal Exposure to Humans: Open road densities by MA do/do not meet KFP Standards in this alternative (see MIS section). Some temporary increases in risk from human-caused mortality would accompany localized increases in ORD during harvest activities. This increased risk would be immeasurable during harvest activities. Effects would be limited to avoidance of activity areas and transient use could still occur.

Cumulative Effects

Past timber harvest and road construction projects and natural events have created much of the existing habitat conditions found within the PSU. **Include the following if applicable**

Prey Base: The (insert pack name) pack's territory covers (list PSUs). Past analyses (over the last 10 years) in these PSUs show that big game habitat management directions are being met.

Timber Harvest: With the current Douglas-fir bark beetle infestations, there is the potential for small salvage timber sales. In addition, blowdown salvage sales may occur after wind events. Salvage activities would follow KFP and Forest-wide Blowdown Salvage DN/FONSI (USDA Forest Service 1998b) direction. Treatment acres are not expected to exceed 40 acres over the next 10 years.

Salvage sales and associated activities can result in the loss of hiding cover and create localized disturbances. It is expected that ongoing and reasonably foreseeable salvage harvest and associated activities within the [X] PSU would cumulatively contribute localized and minor changes to availability of hiding cover. During logging operations, there may be short-term disturbance to the wolf and their prey species.

There are no ongoing timber sales on State land within the Planning Area. Ongoing timber harvest on private land includes both regeneration and selective silvicultural prescriptions. Private and State land represent approximately [X] percent of the [X] PSU. In review of aerial photos, it is anticipated that less than [X] percent of their land would be harvested over the next 10 years (approximately [X] acres of regeneration harvest). The amount of new road construction is expected to be minor. Both state and private landowners generally restrict public use on their roads. Potential effects to wolves from ongoing timber harvest and road construction activities on private land would be minor.

Private land development: Land development, including the construction of roads, the clearing of vegetation, the construction of residences, and the installation of improvements, can create a variety of changes to the landscape. Depending on the magnitude, type and location of developments and the amount of private land on the landscape, these activities can have varied effects, including the loss of hiding cover and localized disturbance on wolves and their prey species.

Private land occupies approximately [X] percent of the PSU and is intermixed with public land. Approximately [X] percent of private land supports forested habitat that provides hiding cover. Forage openings and cover blocks are/are not well distributed across non-forest service land in the PSU (see cover/forage map in project file).

Development of other lands within the Planning area could potentially reduce the amount of hiding cover; however the remaining levels would still meet recommended levels for big game. Some private land development can result in the loss of habitat and decreases in habitat security through road construction. Past trends in land development here would suggest that development would continue to occur at a low rate and would have minor impacts on wolves and their prey species within the analysis area over the next 10 years.

Pre-commercial Thin: Pre-commercial thinning on National Forest land occurs when past regenerated timber stands meet certain stand conditions. It is expected that [X] acres would be

treated through pre-commercial thinning within the PSU during the time period this proposed project is active. Pre-commercial thinning would maintain hiding cover values of the stand for associated species. During thinning operations, there would be short-term localized disturbance to wolves and their prey species in the area. Mortality risk for associated species is not expected to increase. Pre-commercial thinning on State land is considered a minor activity. With the limited amount of pre-commercial thinning on State lands, potential effects to wolves and their prey species would be indiscernible.

Hunting: Ongoing hunting activities are regulated by the MFWP. The Forest Service influences hunter access through road management. The Forest Service also identifies areas where physically challenge hunters are allowed to drive restricted roads. This program includes [X] roads ([X] miles) in the [X] PSU.

Hunting activities within the PSU would cumulatively contribute to minor short term effects (during the general hunting season) to habitat security. Affects from hunting vary with activity levels and can include short-term disturbance. Mortality risk to the wolf is increased through hunting. The level of hunting within the analysis area is not expected to significantly change due to the proposed action.

Hunting activities on State and private land vary with area, but access is limited and use levels are low. With the generally limited amount of these activities on private and State lands, potential effects to the wolf would be minimal.

Regulatory Consistency

KFP

- The project complies/does not comply with KFP direction on T&E species that applies to the gray wolf (FP II-1 #5, II-23) and its prey base (FP II-1 # 3, #7, #12; II-7, II-22-23)

Endangered Species Act

- The project is/is not consistent with the Endangered Species Act as evidenced through consultation with the FWS and receipt of concurrence.

Statement of Findings

The proposed action (is likely to adversely affect)(may affect, but is not likely to adversely affect)(is likely to benefit)(would not affect) the gray wolf or its habitat based on:

- Proposed road restrictions would increase habitat security within the Planning Area.
- Mortality risk to the wolf is not expected to measurably increase during proposed activities and would decrease slightly after post sale activities are completed.
- Alternatives would not affect known denning/rendezvous sites.
- There may be a short-term avoidance of areas of activity however transient use could still continue.
- Alternatives would meet KFP big game management recommendations.

Canada Lynx

Methods and Analysis Area

Lynx population ecology, biology, and habitat description and relationships are described in Ruggiero et al. (2000) and Ruediger et al. (2000). That information is incorporated by reference. In addition, the final lynx listing rule (Clark 2000) gives population and habitat status on a national scale. Lynx occurrence data comes from Forest historical records (NRIS Fauna), and other agencies (MNHP, MFWP, USFWS).

The Lynx Conservation Assessment and Strategy (LCAS) Project planning objectives and planning guidelines (pp. 7-1 thru 7-17) were considered and used, when appropriate to the proposed project activities, during Alternative development.

The effects analysis follows the standards and guidelines established in the LCAS (Ruediger et al. 2000). *Only the standards and guidelines applicable to the proposed project are analyzed, and they are only applied to lynx habitat on Federal lands (in compliance with the LCAS).* Those considered but found “not applicable” are found in the project file. Lynx habitat, in impacted LAUs, was mapped using **the timber stand database version of the Kootenai National Forest model with LCAS definitions.** Connectivity was evaluated by visually examining lynx habitat and past management activities to determine possible movement areas and potential areas where lynx travel may be hindered. Ridge lines and draws were considered high value movement areas.

The scale for direct effects analysis is the impacted Lynx Analysis Unit(s) (LAU) and for indirect effects it is the impacted LAUs, and adjacent LAUs for connectivity effects.

Affected Environment

On March 24, 2000 the U.S. Fish and Wildlife Service listed the contiguous U.S. distinct population segment of the Canada lynx as Threatened (Clark 2000). National population and habitat status descriptions in that document are incorporated by reference. There are [X] occurrences of lynx found in the historical records that are within the [X] planning sub-unit (PSU).

In compliance with the LCAS the KNF delineated 47 LAUs which approximate a lynx home range size. At the end of 2004, all LAUs except two met the LCAS primary habitat standards (more than 10 percent denning habitat; less than 30 percent unsuitable habitat; less than 15 percent changed to unsuitable condition in last 10 years) (USDA Forest Service 2005).

Lynx habitat in the impacted LAU(s) was mapped in compliance with LCAS project planning standard #1 (see Figure [X]). Table [X]. displays the current lynx habitat conditions in the PSU.

Table [X]. Lynx Habitat by LAU in the [X] PSU

LAU	Denning Habitat Acres (%)	Unsuitable Habitat Acres (%) ¹	Habitat Changed to Unsuitable Over past 10 years Acres (%)	Total Lynx Habitat In LAU Acres (%) ²
140[X]				

LAU	Denning Habitat Acres (%)	Unsuitable Habitat Acres (%) ¹	Habitat Changed to Unsuitable Over past 10 years Acres (%)	Total Lynx Habitat In LAU Acres (%) ²
140[X]				
140[X]				

¹ These acres are lynx habitat that currently do not provide sufficient vegetation quantity or quality (height) to be used by snowshoe hare and lynx.

² Percent is the percent of total LAU acres that provide lynx habitat (suitable + unsuitable acres)

There are no identified linkage corridors (USDA Forest Service 2004: Figure 1-1; KNF Lynx Taskforce 1997: 6) in the [X] PSU or potentially impacted LAUs or adjacent LAUs.

Environmental Consequences

Direct and Indirect Effects

(Note: only include those S&G analysis that apply to this project –cut and paste the others into separate page and file in project file)

Conservation Measures Applicable to All Programs and Activities

The following LCAS Programmatic planning standards (#1, 2, 3, and 4) and LCAS Programmatic planning guidelines (#1, 2, and 3) have been met at the Forest scale through previous consultation with the FWS (see LCAS for description of these standards and guidelines).

Programmatic planning standard #5: “ ... In the absence of guidance developed from such an assessment, limit disturbance within each LAU as follows: if more than 30 percent of lynx habitat within a LAU is currently in unsuitable condition, no further reduction of suitable conditions shall occur as a result of vegetation management activities by federal agencies.”

See Table [X] for how the impacted LAU(s) meet or exceed the 30 percent unsuitable habitat standard.

Table [X]. Percent Unsuitable Habitat Within Impacted LAUs

LAU	Alternatives				
	[X] (No Action Existing Condition)	[X]	[X]	[X]	[X]
140[X]					
140[X]					
140[X]					

The proposed activities would/would not increase the existing level of unsuitable habitat in [X] LAUs. Activities in LAU 140[X] would be postponed until the level of unsuitable habitat goes

below 30 percent. In LAU 140[X], [X] acres would be converted to unsuitable by the proposed action. In LAU 140[X], [X] acres would be converted to unsuitable by the proposed action.

Project planning standard #2: “Within a LAU, maintain denning habitat in patches generally larger than 5 acres, on at least 10 percent of the area that is capable of producing stands with these characteristics. Where less than 10 percent of the forested lynx habitat within a LAU provides denning habitat, defer those management actions that would delay achievement of denning habitat structure.”

See Table [X] for a comparison, by Alternative, of how the impacted LAU(s) comply with the 10 percent denning habitat standard. All [X] LAUs meet this standard. All LAUs are well above 10 percent and the denning habitat stands are generally larger than 10 acres. In LAU 140[X], [X] acres of modeled denning habitat would be removed but the LAU would remain well above the 10 percent minimum standard. In LAU 140[X], [X] acres of modeled denning habitat would be removed when unsuitable habitat is recovered (2009) and the LAU would remain well above the 10 percent minimum standard. In LAU 140[X], [X] acres of modeled denning habitat would be removed but the level would remain well above the 10 percent minimum standard.

Table [X]. Denning Habitat Within Impacted LAUS

LAU	Alternatives				
	[X] (No Action Existing Condition)	[X]	[X]	[X]	[X]
140[X]					
140[X]					
140[X]					

Project planning standard #3: “Maintain habitat connectivity within and between LAUs.”

This standard is/is not met. Habitat connectivity within the impacted LAUs is generally good except for [X] where cover is restricted to narrow corridors due to the effects of fire and harvest activities. Connectivity with other LAUs is mostly good to the north and west, but poor in other directions due to [X]

There are no identified linkage corridors (USDA Forest Service 2004: Figure 1-1; KNF Lynx Taskforce 1997: 6) in or adjacent to the Planning sub-unit or potentially impacted LAUs.

Conservation Measures to Address Risk Factors Affecting Lynx Productivity

A. Timber Management in Lynx Habitat

Project planning standard #1: “Management actions (e.g., timber sales, salvage sales) shall not change more than 15 percent of lynx habitat within a LAU to an unsuitable condition within a 10-year period.”

This standard **is/is not** met in all affected LAUs. Table [X] provides a comparison, by Alternative, of how the impacted LAU(s) comply with this standard.

Table [X]. Habitat Changed to Unsuitable in the last 10 Years in Impacted LAUs

LAU	Alternatives				
	[X] (No Action Existing Condition)	[X]	[X]	[X]	[X]
140[X]					
140[X]					
140[X]					

Project planning standard #2: “Following a disturbance such as blowdown, fire, insects, and disease that could contribute to lynx denning habitat, do not salvage harvest when the affected area is smaller than 5 acres. Exceptions include ... 2) LAUs where denning habitat has been mapped and field validated and compromises more than 10 percent of the lynx habitat within a LAU....”

This standard does not apply since all of the LAUs have mapped and field verified denning habitat in excess of 10 percent.

Project planning standard #3: “In lynx habitat, pre-commercial thinning would be allowed only when stands no longer provide snowshoe hare habitat.”

This standard does not apply since no pre-commercial thinning is proposed in lynx habitat.

Project planning standard #4: “In aspen stands within lynx habitat in the Cascade Mountains, Northern Rocky Mountain and Southern Rocky Mountains Geographic Area, apply harvest prescriptions that favor regeneration of aspen.”

This standard does not apply. None of the planned timber harvest is in aspen stands. Aspen was not historically common in any of the LAUs nor is it common in them currently. Aspen is a minor component of the forested areas.

B. Wildland Fire Management

Prescribed fires are included in the definition of Wildland Fire Management. These fires can be either for reducing fuels created by harvest activity (slash burning) or for restoring historical fire disturbance and resulting vegetative characteristics. **Prescribed fires are planned after harvest to reduce the slash fuel hazards and prepare the stands for regeneration by natural seeding and/or tree planting.**

Project planning standard #1: “In the event of a large wildfire, conduct a post-disturbance assessment prior to salvage harvest, particularly in stands that were formerly in late successional stages to evaluate potential for lynx denning and foraging habitat.”

This standard does not apply since no post-fire salvage is proposed under the [X] Project.

Project planning standard #2: “Design burn prescriptions to regenerate or create snowshoe hare habitat (e.g., regeneration of aspen and lodgepole pine).”

This standard is met. The proposed under burning is mostly in lower elevation areas outside of lynx habitat. In lynx habitat, following regeneration harvest, the proposed prescribed burning would consist of mostly under burning. The effect would be to create snowshoe hare habitat.

C. Recreation Management.

Programmatic planning standard #1: “On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. This applies to dispersed recreation, rather than existing ski areas.”

Not Applicable. No recreation activities are included in the planned activities.

Project planning standard #1: (Developed Recreation) “In lynx habitat, ensure that the federal actions do not degrade or compromise landscape connectivity when planning and operating new or expanded recreation developments.”

Not Applicable. No developed recreation activities included in the planned activities.

Project planning standard #2: (Developed Recreation) “Design trails, roads, and lift termini to direct winter use away from diurnal security habitat.”

Not Applicable. No developed recreation activities included in the planned activities.

D. Forest/Backcountry Roads and Trails.

Programmatic planning standard #1: “On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. Winter logging activity is not subject to this restriction. “

This standard is met. Winter logging could occur on proposed timber sales but the standard states that winter logging is not subject to the restriction. Under current district management, all portions of the planned timber sales are open to snowmobiling but none of the areas are designated as play areas.

E. Livestock Grazing.

Project planning standard #1: “Do not allow livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree components. Delay livestock use in post-fire and post-harvest created openings until successful regeneration of the shrub and tree components occurs.”

This standard is met. The allotment in the north end of the PSU is currently in nonuse status. Even if this changes, very little proposed regeneration harvest would occur with the allotment boundary.

Project planning standard #2: “Manage grazing in aspen stands to ensure sprouting and sprout survival sufficient to perpetuate the long-term viability of the clones.”

This standard is met. There are no extensive aspen stands in the PSU and where trees or small patches do exist they are expected to successfully regenerate. See the discussion for standard #1 above.

Project planning standard #3: “Within the elevation range that encompass forested lynx habitat, shrub-steppe habitats should be considered as integral to the lynx habitat matrix and should be managed to maintain or achieve mid-seral or higher condition.”

Not applicable. No shrub-steppe habitats exist on the Kootenai National Forest.

Project planning standard #4: “Within lynx habitat, manage livestock grazing in riparian areas and willow carrs to maintain or achieve mid seral or higher condition to provide cover and forage for prey species.”

This standard is met. Refer to the discussion under project planning standard #1.

F. Other Human Developments: Oil and Gas Leasing, Mines, Reservoirs, Agriculture.

Project planning standard #1: “On projects where over-snow access is required, restrict use to designated routes.”

Not Applicable.

Conservation Measures to Address Mortality Risk Factors

As described in the LCAS (pp. 7-12 and 13), there are 5 measures used to address mortality risk factors. They are: trapping, predator control, shooting, competition and predation as influenced by human activities, and highways. Predator control is not within the authority of the Forest Service and therefore is not applicable to Forest Service projects.

Trapping (legal and non-target) and Shooting: Federal agencies should work to reduce incidental take of lynx related to trapping and shooting. The Forest service role in these issues is access.

These conservation measures are met. No new permanent road construction would occur, and the risk of mortality from incidental trapping would not increase. There would be no other change in road management associated with allowable snowmobile use, and increased use would not be expected.

Competition and Predation as Influenced by Human Activities: “On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. This is intended to apply to dispersed recreation, rather than existing ski areas.” This standard is met. The proposed activities would not cause any increase in groomed or designated over-the-snow routes and snowmobile play areas. Although winter logging could occur, no increase in groomed or designated over-the-snow routes and snowmobile play areas would result. Snowmobiles can legally use the project area under current management direction but there are no groomed or designated routes or play areas.

Highways: “Within lynx habitat identify key linkage areas and potential highway crossing areas.”

Not Applicable. No highways are located within impacted LAUs or between them or any adjacent LAU.

Conservation Measures to address Movement and Dispersal

The programmatic planning objectives, standards, and guidelines to provide landscape connectivity are being incorporated into the Northern Region Lynx Amendment to the Forests Plans.

Highways - Project planning standard #1: Not Applicable. No highways are located within impacted LAUs or between them or any adjacent LAU.

Land Ownership – Project planning standard #1: “.protect/ enhance key linkage areas.” Key linkage areas do/do not exist in the [X] PSU or between affected LAUs and adjacent LAUs (see Conservation Measures Applicable to All Programs and Activities - Project planning standard #3: “Maintain habitat connectivity within and between LAUs.”). Alternatives were designed to assure protection or enhancement of key linkage areas (see Alternative descriptions).

Ski Area/Large Resorts and Associated Activities – Not applicable.

The planned activities comply with these conservation measures. Landscape connectivity would be maintained as described under Conservation Measures Applicable to All Programs and Activities, Project Planning Standard #3. No highways, land ownership adjustments, or ski areas/resorts are involved.

Cumulative Effects

The No Action Alternative does not directly contribute any cumulative effects. Other actions, previously identified, that would still take place do/do not add to the cumulative effects. They [insert effects if appropriate]

The action alternatives, in combination with the existing condition and reasonably foreseeable actions (see list provided earlier) would/would not result in cumulative changes in or loss of lynx habitat. The affected LAUs would/would not meet LCAS standards and guidelines.

[Insert Table With Cumulative Habitat Values If S&Gs Not Met.]

Regulatory Consistency

- The project complies/does not comply with KFP direction on T&E species that applies to the Lynx (FP II-1 #7, II-22).
- The project is/is not consistent with the Endangered Species Act as evidenced through consultation with the FWS and receipt of concurrence.

Statement of Findings

The proposed action (is likely to adversely affect)(may affect, but is not likely to adversely affect)(is likely to benefit)(would not affect) the lynx. This determination is based on: 1) [summarize rationale for determination]

Migratory Birds

Executive Order #13186 (January 10, 2001): “Responsibilities of Federal Agencies to Protect Migratory Birds” was issued by President Bill Clinton in furtherance of the purposes of the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Acts, the Fish and Wildlife

Coordination Act, the Endangered Species Act, and the National Environmental Policy Act. This order requires including effects of federal actions on migratory birds as part of the environmental analysis process. On January 17, 2001, the USDA Forest Service and the USDI Fish and Wildlife Service signed a Memorandum of Understanding to complement the Executive Order.

The National Forest Management Act (NFMA) requires that KFPs “preserve and enhance the diversity of plant and animal communities..so that it is at least as great as that which can be expected in the natural forest” (36 CFR 219.27). Additional direction states that “management prescriptions, where appropriate and to the extent practicable, shall preserve and enhance the diversity of plant and animal communities, including endemic and desirable naturalized plant and animal species, so that it is at least as great as that which could be expected in a natural forest.” Furthermore, implementation regulations for the NFMA specify that, “Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area.”

Affected Environment

Neotropical migratory birds are those bird species that migrate to more northerly latitudes to breed on the Kootenai National Forest each summer. Come fall, these species migrate south to spend the winter months. Of the approximately 205 bird species known to occur on the Forest as breeders, migrants, winter visitors, or transients, about 70 species could be classified as Neotropical migratory land birds (Al Bratkovich, Libby District Wildlife Biologist and Forest Land Bird Monitoring Program Coordinator, pers. comm. with [X] 1999).

Environmental Consequences

Responses of migrant birds to timber harvest, burning (prescribed or wildfire) depends upon their individual habitat preferences and needs. Regeneration harvest removes forest cover used by some species (e.g. brown creeper, golden-crowned kinglet, hermit thrush) and at the same time creates grass, forbs, and shrub habitat used by other bird species (e.g. American kestrel, calliope hummingbird, chipping sparrow). This activity also produces “edge” habitat that still other bird species use (e.g., dark-eyed junco, western tanager, Townsend’s warbler). Edge habitat often is similar to forest stands created with partial cutting (e.g. commercial thinning, shelterwood). Species using edge are often found in partial cut stands, so this management practice may provide additional habitat for these species (Hutto and Young 1999).

Effects common to all alternatives

Management indicator species have been designated for the Kootenai National Forest (see the discussion of MIS above). These MIS species represent the habitat needs for migratory birds. As habitat for MIS species is being maintained, it is assumed that sufficient habitat and populations of Neotropical migratory land birds is also being maintained.

Regulatory Framework and Consistency

There are no specific goals or standards for migratory land birds in the KFP. It does contain the goal to: “Maintain diverse age classes of vegetation for viable populations of all existing native, vertebrate, wildlife species (FP, Vol. 1, II-1, goal #7). All alternatives are consistent with the KFP, as a wide range of successional habitats would be available (see Vegetation and MIS sections). The alternatives are in compliance with the Executive Order titled “Responsibilities of Federal

Agencies to Protect Migratory Birds.” In addition, as habitat for MIS species is being maintained in the [X] PSU, and across the Kootenai National Forest, their habitat contributes to the maintenance of habitat and populations of Neotropical migratory bird species.

Other Species Of Interest (Optional To Include Any Or All)

The species in this section are of special interest on this project due to potential impacts on their habitats and their known or suspected presence in the area.

Columbian Sharp-tailed Grouse (*Tympanuchus phasianellus columbianus*)(OPTIONAL to Include)

Methods and Analysis Area

Columbian sharp-tailed grouse population ecology, biology, habitat description and relationships identified by research are described in Cope (1992), Wood (1991), and Young (1995 and 1996). That information is incorporated by reference. Sharp-tailed grouse occurrence data comes from past Rexford District wildlife observation records. Suitable habitat is identified using the model by Young (1996). Based on the location of suitable habitat, analysis is considered for inclusion only if the proposed project is in the Ksanka planning sub-unit or the northern 2 miles (based on movement distances from Cope 1992) of the Pinkham or Meadow planning sub-unit.

Affected Environment

The only known occupied habitat occurs in the native bunchgrass prairie of the Tobacco Plains which is part of the Tobacco Planning Unit. Portions of the Koocanusa planning unit likely had some historical sharp-tail use (Johnson 1999). The vegetation composition of sharp-tail habitat is primarily grasses, with some use of shrubs for brood rearing and bare ground during the breeding season (Cope 1992; 27). Deciduous trees and shrubs, especially in riparian areas, become important during the winter. There are no known leks (breeding sites) on National Forest lands. The lek known to occur on the Tobacco Plains has not been active since 2000. Potential breeding habitat in the Planning sub-unit occurs Potential wintering habitat in the Planning sub-unit occurs ...

Environmental Consequences

Breeding habitat is not known to occur and the potential for it to occur on National Forest lands is limited. Sharp-tailed grouse would be vulnerable to disturbances caused by harvest or prescribed burning activities in breeding habitat from March through June. Prescribed fire would result in stimulating growth and vigor of deciduous shrubs in wintering areas.

Direct and Indirect Effects

Effects of Alternative 1 (No Action)

No activities are proposed in potential breeding or wintering habitat, thus no effects are expected to potential habitat in the short term. In the long term, a lack of prescribed fire in wintering habitat would result in less shrub cover and forage.

Effects of Action Alternatives

No harvest activities are proposed in potential breeding habitat, thus no effects are expected to breeding habitat. Thinning and prescribed burning are proposed in potential wintering habitat. At least 10 percent of the area would be maintained with no thinning or burning (Young 1995).

Cumulative Effects

The cumulative effects of past and present land uses and natural random events have been incorporated into the analysis of current habitat within the project area. The effects of private land development and the associated predation by cats and dogs have likely resulted in adverse cumulative effects that have all but eliminated this isolated population of sharp-tailed grouse. No other cumulative adverse effects to sharp-tailed grouse from implementation of past or present federal actions have been identified during this analysis.

Interspersed private lands and residences pose a potential future disturbance/mortality threat to birds wintering in [insert name] area because of predation by dogs and cats.

Regulatory Consistency

The proposed action meets KFP goals for sensitive species.

Summary Statement

The proposed action [select appropriate determination statement] (is not likely to impact individuals or their habitat and would not contribute to a trend toward federal listing or loss of species viability)(is likely to impact individuals and/or their habitat, but would not contribute to a trend toward federal listing or loss of species viability) (is likely to impact individuals and/or their habitat, and is likely to contribute to a trend toward federal listing or loss of species viability) for sharp-tailed grouse. This determination is based on: 1) [summarize rationale for determination]

Woodland Caribou (Optional to include)

Methods and Analysis Area

Woodland caribou ecology, biology, habitat use, status and conservation are described and summarized in U.S. FWS (1994), Allen (1998), and Rominger (1992). That information is incorporated by reference. The Kootenai NF Plan (Vol.1 p. II-1 # 3, #7; II-7; II-22-23) provides guidance for caribou management concerning motorized access and maintenance of old growth and other age classes of vegetation. Woodland Caribou occurrence data comes from District wildlife observation records and Forest historical data (NRIS FAUNA) and other agencies (MNHP, MFWP).

The potential effects on woodland caribou and its habitat are determined by predicting the change to habitat components that would result from project activities. Acres of caribou habitat treated that results in reduced canopy cover would be the measure of effects. As a worst-case scenario, the effects analysis assumes that the amount of suitable habitat lost would be the sum of harvested and burned areas.

The analysis boundary for project impacts to individuals and their habitat is the [insert name] planning sub-unit. The boundary for cumulative effects and determining trend or viability is the Kootenai National Forest.

Affected Environment

The woodland caribou was thought to be extirpated from Montana in 1958 (FWS 1994). However, occasional sightings are reported on the Kootenai NF. These animals are assumed to be wandering in from Canada or Idaho and then moving back to their normal range. The most recent report on the Forest was in [X]. There are/ are no recent (past 5 years) reports of caribou in the [X] PSU.

Research (Summerfield et al. 1985; Allen-Johnson and Deiter 1993; FWS 1994; Allen 1998) describe caribou habitat in terms of five seasonal components. The seasonal component descriptions from that research are incorporated by reference. The [X] PSU contains some acres of each seasonal component. “Key” habitat occurs at mid-elevations and has the quality to be useful for more than one seasonal component (Allen 1999). Key habitat is/is not present in the PSU. Old growth in the [X] PSU stands at [X] percent.

Environmental Consequences

Direct and Indirect Effects

Any reduction of canopy cover in treatment areas would render caribou habitat less suitable (Stevenson 1979, Detrick 1985). Stands in the harvested and burned areas may not retain sufficient canopy cover to remain suitable (Rominger 1992). However, portions of harvest areas may retain sufficient canopy cover to remain suitable for various seasonal habitat components, depending on prescription details (e.g. leave islands, salvage dead only, etc.).

This proposal would treat approximately [X] acres of currently suitable caribou habitat in the primary treatment areas, and as much as [X] acres of suitable habitat in secondary burn areas. Alternative [X] would maintain early winter cedar-hemlock habitat, provide a suitable mix of other seasonal habitat components, maintain Key habitat acres, and not increase the risk of direct mortality. Therefore, there would be no measurable effects to caribou habitat as a result of this proposal.

Mortality risk to caribou can be directly linked to motorized access (Dyer 1999). Caribou habitat overlaps grizzly bear habitat. The motorized access standards for grizzly bear provide habitat security levels for caribou that minimize mortality risk. The proposed project does not meet/meets the grizzly bear motorized access standards. Caribou use of winter range is thought to be a limiting factor. Associated with that time period is snowmobile use. The proposed action does/does not add to the potential for snowmobile use on caribou winter range.

Cumulative Effects

The cumulative effects of the [X] alternatives would/would not change [X] acres of caribou habitat. The cumulative effects of past and present land use patterns as well as random natural events have been taken into consideration in describing the existing condition. There are/are no reasonably foreseeable activities planned that could change the magnitude or scope of effects described above. Old growth would not be reduced below 10 percent in each major drainage below 5,500 feet, and additional old growth is present at higher elevations.

Regulatory Consistency

The project complies with NFMA direction to maintain viable populations of vertebrate species by compliance with KFP standards and guides (Johnson 2004).

KFP

- All alternatives comply with KFP direction to maintain diverse age classes of vegetation ... and to maintain habitat diversity representative of existing conditions (FP pg. II-1 #7).
- All alternatives comply with KFP old growth direction.
- All alternatives, with approved KFP ORD amendments, comply with access standards.

Summary Statement

Based on the above caribou analysis, the proposed action **would/would not** maintain sufficient habitat to support the transient caribou use in the PSU and on the Forest. This statement is based on: 1) **treatments would take place outside the spring calving season, and would not alter these stands in such a way as to make them unacceptable for calving,** 2) **“key” habitats are maintained;** 3) **Winter caribou habitat is maintained;** 4) **caribou mortality risk from motorized access (including snowmobiles) is not increased.**

Other Required Disclosures

Evaluation of Restrictions on Private Property

In 1995, the Montana State Legislature amended MEPA to require state agencies to evaluate in their MEPA documents any regulatory restrictions proposed to be imposed on the use of private property (MCA §75-1-201(1)(b)(iv)(D)). This section has been included in order to satisfy the requirements of this new law. The proposed action (Alternative [X]) evaluated in this EIS would allow Genesis to mine on lands owned privately by Genesis as well as on public lands owned by the United States. The No Action Alternative and the three agency action alternatives (Alternatives II – IV) comprised of numerous modifications and mitigations have been developed as part of the EIS. These alternatives would alter and restrict the way mining and reclamation would be conducted on private and public lands at the proposed mine site in order to protect environmental, cultural, and social resources. The following sections provide a comparison of the costs associated with each alternative to the proposed actions. The costs cited are those that are necessary to comply with discretionary restrictions over and above the costs of the proposed action.

Federal and state laws that would regulate Genesis’s activities at the proposed mine site include:

- National Environmental Policy Act (NEPA)
- Clean Air Act
- Clean Water Act
- Archeological Resources Protection Act
- National Historic Preservation Act
- Endangered Species Act

- Migratory Bird Treaty Act
- Organic Administration Act
- Native American Graves Protection and Repatriation Act
- American Indian Religious Freedom Act
- Montana Environmental Policy Act
- Montana Metal Mine reclamation Act
- Montana Clean Air Act
- Montana Water Quality Act
- Montana Hazardous Waste Act
- Solid Waste Management Act
- Montana Water Use Act
- Hard Rock Mining Impact Act
- County Noxious Weed Control Act

Alternatives and mitigation measures designed to make the project meet minimum environmental standards specifically required by federal or state laws and regulations are not required to be evaluated if the agencies have no discretion to alter or waive them. Components of the alternatives that are taken from permit applications, such as the MPDES, Air Quality, and 404(b)(1) permits, are not considered discretionary even though they are not based on the proposed action, Alternative II, but rather on the preferred alternative, Alternative [X]. (Please note, however, that once a permit is approved, the various components (modifications and mitigations) comprising the permit conditions then become mandatory for compliance purposes under both state and FS regulations.) The agencies developed the cost figures in Table [X] in cooperation with Genesis (Genesis [X]).

Analyzed in this section are the costs of various components or mitigations that comprise each agency alternative. Alternatives would either prohibit development altogether (Alternative I) or allow mine development but with numerous changes in the plan of operations and facility locations compared to the proposed action (Alternative II). For each alternative, the benefits and the costs of discretionary mitigations as they relate to the use of Genesis's private property are compared. The action alternatives and the mitigation measures evaluated do not prohibit development of the proposed project, but could require Genesis to spend additional funds beyond the minimum required for compliance with environmental regulations. The higher the costs associated with regulatory compliance, the less the economic benefit gained from the use of the property, and the more restrictive the regulatory actions is to the use of private property. The rationale for including the various modifications and mitigations is discussed in either the alternative descriptions in Chapter 2 or the environmental effects sections in Chapter 3.

[Insert a description of any restrictions on private property by alternative and reference the effects described in the environmental consequences 'topics' discussion. A table comparing costs for each restriction for each alternative should be included.]

Environmental Justice

On February 11, 1994, President Clinton signed Executive Order 12898 titled Environmental Justice. This order requires federal agencies to address environmental justice issues when

implementing their respective programs. The Order directs federal agencies to take the lead role in coordinating environmental justice issues with Federally-recognized American Indian Tribes.

The action alternatives were evaluated for impacts relating to the social, cultural, and economic issues of the population at large. Such Issues are termed “environmental justice: issues and no such issues regarding the well-being and the health of minorities and low income groups were identified during scoping. Other than members of four American Indian Tribes within the region, the agencies have not identified nay other racial minorities or impoverished populations within the project area that might be affected by implementation of this project.

Several different situations are often cited in defining environmental justice. The following is a summary of each:

- The targeted siting of potentially polluting facilities in areas with racial minorities or impoverished populations. The motives often attributed to the proponent are: that they do not care about the affects on minority populations; and/or that the site is desirable because minorities and the poor do not have the resources to oppose the project.
- Discrimination by regulatory agencies in enforcement of environmental standards where projects may be affecting low income or minority populations. The argument is that these groups cannot obtain the same level of regulatory protection as other groups that may be wealthier, more politically powerful, or of a different race.
- The inequitable distribution of project benefits, primarily economic, with project impacts such as increased pollution of perceived risk of pollution.

Therefore, environmental justice considerations can be grouped into three general categories: facility siting and opposition, regulatory agency discrimination, and equitable distribution of project benefits and risks.

The following is a discussion of these three categories

Facility Siting and Opposition

[\[Add verbiage.\]](#)

Regulatory Agency Discrimination

[\[Add verbiage.\]](#)

Equitable Distribution of Project Benefits and Risks

[\[Add verbiage.\]](#)

Conclusion

[\[Add verbiage.\]](#)

Prime Farmland, Rangeland, and Forestland

The alternatives presented are in compliance with Federal Regulation for prime lands. The definition of prime forest land does not apply to lands within the National Forests. Lands administered by the FS in the project area do not include any prime farm lands or range lands. In

all alternatives, Federal lands would be managed with the appropriate consideration to the effects on adjacent lands

Energy Requirements and Conservation Potential

Alternatives requiring the most construction have the least potential for conserving energy. The amount of energy required to implement any of the actions alternatives, in terms of petroleum products, would be insignificant when viewed in light of the production costs and effects of the national and worldwide petroleum reserves.

Urban Quality and the Design of the Built Environment

Implementation of any of the action alternatives would not affect urban quality. No buildings or other forms of man made structures would be affected by any of the alternatives.

Chapter 4. Consultation and Coordination

Preparers and Contributors

The FS and DEQ consulted the following individuals, Federal, State, and local agencies, tribal governments and agency persons during the development of this environmental assessment:

IDT Members

Name	Responsibility	Name	Responsibility
Forest Service			
[Last, First Name]	[Resource]	Department of Environmental Quality	

Federal, State, and Local Agencies

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Peter, Chandler
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Tribal Governments

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CSKT – Tribal Liaison, Loretta Stevens
Kootenai Tribe of Idaho (KTOI) – Jennifer Porter, Chairman

Fish Wildlife and Parks (FWP)

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Williams, Jim

U.S. Fish and Wildlife (USFWS)

Conard, Ben
Kasworm, Wayne
Wilson, Mark
Baumler, Mark

Idaho DEQ

Berquist, June

Others

[\[Insert names\]](#)

List of Agencies, Organizations and Person to Whom Copies of the DEIS

This EIS has been distributed to individuals (approximately [X] persons) who specifically requested a copy of the document either in hard or electronic copy. In addition, copies have been sent to the federal agencies, tribal governments, state and local governments, and organizations representing a wide range of views regarding the proposed Troy Mine Revised Reclamation Plan. The mailing list was compiled using the names and addresses of the following:

- Parties who participated in public meetings or who submitted written comments
- Parties who have requested copies of the EIS
- Agencies, governments, tribes, and companies potentially affected by the proposed operation
- Agencies and groups consulted during the EIS preparation

A copy of this draft EIS can be reviewed at the following locations or via the Internet on the FS web page [X] or the DEQ web page [X]:

Supervisor's Office, Kootenai National Forest, Libby, MT
Libby Ranger Station, Libby, MT
Montana Department of Environmental Quality, Helena, MT
Montana State Library
U.S. Army Corps of Engineers, Helena, MT
Mansfield Library, University of Montana, Missoula, MT
Lincoln County Library, Libby, MT

Copies of this document are also available on request from:

Kootenai National Forest
1101 Hwy 2 W
Libby, MT 59923
(406)293-6211

Montana Department of Environmental Quality
PO Box 20901
Helena, MT 59620-0901
(406)444- 1760

The following agencies, organizations, and individuals received a copy of the draft EIS or executive summary:

Federal, State or Local Agencies

[Insert names]

Organizations

[Insert names]

Individuals

[Insert names]

Index

[Insert a concordance index]

List of Acronyms

ACRONYM	Acronym description
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Glossary

glossary term	Glossary term definition	Glossary source
glossary term	Glossary term definition.	Glossary source

References

[Use this table for articles published through a publishing establishment.]

Last Name, I.N., I.N. Last Name	Year	Title[Fisrt word capitalized and all succeeding words are not unless they are proper names then capitalize]	Publisher. Address, City, State, Zip Code	pp. Total number of pages	Web Page address if taken from World Wide Web
Agee, J.K	1993	Fire ecology of Pacific Northwest forests	Island Press, Suite 300, 1718 Conneticut Avenue, NW, Washington D.C., 20009	pp. 493	

[Use this table if an article is published in a journal.]

Last Name, I.N., I.N. Last Name	Year	Title[Fisrt word capitalized and all succeeding words are not unless they ar proper name then capitalize]	Journal Title Volume: page number – number	Nothing here	Web Page address if taken from World Wide Web
Chapin, F.S., M.S. Torn, and M.Tateno	1996	Principles of ecosystem sustainability	American Naturalist 148:1016-1037		

[Use this table for all references to thesis and dissertation.]

Last Name, I.N., I.N. Last Name	Year	Title[Fisrt word capitalized and all succeeding words are not unless they ar proper name then capitilize]. State thesis or dissertaton	Academic Institution where thesis or dissertation is filed, Address, City, State, Zip Code	pp .Total number of pages	Web Page address if taken from World Wide Web
Bull, E.L	1980	Resource partitioning among woodpeckers in northeastern Oregon. PhD. Dissertation	University of Idaho Moscow, ID	p. 3-8	

[Use this table for government documents.]

Last Name, I.N., I.N. Last Name	Year	Title.[Fisrt word capitalized and all succeeding words are not unless they ar proper name then capitalize]	Agency, Originating Station (can be abbreviated), report number(can be abbreviated)	pp. Total number of pages	Web Page address if taken from World Wide Web
Gucinski, H., M.J. Furniss, R.R. Ziemer, M.H. Brookes	2001	Forest roads: a synthesis of scientific information. General Technical Report PNW- GTR-509	USDA Forest Service, Pacific Northwest Research Station, Portland OR	pp. 103	

[Use this table for proceeding, symposia or workshops.]

Last Name, I.N., I.N. Last Name	Year	Title.[Fisrt word capitalized and all succeeding words are not unless they ar proper name then capitilize]. <i>In</i> : [I.N. Last Name, eds.] Name of proceedings, symposia or workshop.	Agency, Originating Station (can be abbreviated), report number(can be abbreviated) Address, City, State, Zip	Total number of pages pp	Web Page address if taken from World Wide Web
Banci, V	1994	Wolverine. <i>In</i> L.F. Ruggiero, K.B. Subry, S.W. Buskirk, L.J. Lyon, and W.J.Sielinski tech. eds. The scientific basis for conserving forest carnivors American marten, fisher, lynx, and wolverine in the western United States	USDA Forest Service, Rocky Mountain Forest and Range Experimental research Station. Gen. Tech. Rpt. RM-254. Fort Collins CO	p. 110-119	

Appendix

A – Appendix Title

[Insert any material that is essential to the understanding of the environmental impact statement.]

B – Public Comments and Responses [for FEIS only]

[Insert response to public]